

Health and Safety Executive

**Development of a Business Excellence Model
of Safety Culture: Safety Culture Improvement Matrix**

Prepared by **Entec UK Ltd**
for the Health and Safety Executive

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Development of a Business Excellence Model of Safety Culture: Safety Culture Improvement Matrix

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The achievement of an effective safety culture is recognised to be a vital element of achieving and maintaining satisfactory standards of health and safety performance. Previous publications, particularly the ACSNI report 'organising for safety', have described the features of an effective culture, and the HSE's safety climate survey tool provides a means of measuring attitudes. The safety culture improvement matrix (SCIM) described herein provides a model for the development and maintenance of an effective safety culture, and a means of assessing how well an organisation is managing this process. The document describes a framework of cultural and behavioural safety that applies to all levels of an organisation, taking into account the needs of the business, as well as the expectations and requirements of stakeholders, i.e. customers, general public, employees, local authorities etc.

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OVERVIEW

AIMS

The development of an effective safety culture has been recognised as a vital element in the achievement of high standards of safety, alongside an effective safety management system and organisational structure. The importance of safety culture is reflected by the Advisory Committee on Safety in Nuclear Installations report on “Organising for Safety”, and many subsequent initiatives in industry, such as safety climate surveys and application of behavioural safety schemes. The Safety Culture Improvement Matrix (SCIM) shown herein draws the principles, methods and guidance that has emerged from these research and industry initiatives into a “model” approach to the development of safety culture. In this way the SCIM encapsulates best practice in the field of safety culture. The SCIM has three main aims:

- To provide a model of how an organisation should approach the development of an effective safety culture
- To provide a means by which an organisation’s current approach to developing its safety culture can be assessed
- To provide a means by which improvements in an organisation’s approach to developing its safety culture can be identified.

In all cases, it should be possible to complete the assessment without being required to complete a survey or apply other primary data collection methods – although the results from such surveys would be a useful source of information. The assessment can be applied based on the assessors understanding of the organisation’s features and approach to safety management, i.e. the SCIM can be applied by self-assessment. This reflects the primary aim of the tool, to provide guidance on how to develop safety culture rather than the secondary aim of assessing the current safety culture.

The tool is applicable to organisations that wish to start a safety culture initiative, as it provides advice on the “starting” point of developing an effective culture. It is also applicable to the ongoing review and development of safety culture, as it is designed to help pinpoint areas requiring further improvement.

A list of references containing further guidance on how to improve safety culture is given in the reference section of this report including the reference for the report describing the development of this SCIM.

STRUCTURE OF THE SCIM

In line with the tool’s primary aim, of providing a developmental model of safety culture, the SCIM provides guidance on:

- the management processes required to specify, plan and implement an effective safety culture, and thereafter maintain and further improve the safety culture,
- the approach to deciding what the organisation’s health & safety ideology should be,
- how this ideology is translated into a set of “operational” targets,

- how the organisation goes about deciding how best to achieve these targets,
- how success in meeting these targets is measured.

Safety climate and behavioural safety techniques may be subsumed within this process where the organisation ascertains that they are appropriate means of supporting the process of developing a safety culture.

The main elements of the SCIM match those used by the Business Excellence Model (BEM) as shown in Figure 1. The BEM has been designed to act as a model of how to achieve excellence in business management. Accordingly, the design of the BEM matches the aims of this tool. For this reason the BEM has been used as a template around which to design the SCIM. This includes the concept of distinguishing between “enablers” and “results”; where enablers are those actions required to develop an effective safety culture, and “results” are the measured outcomes of these actions. However, the issues and examples raised within each element have been drawn from research into safety culture best practice. This includes research into the features of organisations that display high standards of safety and positive safety climates, and research into how organisations have successfully achieved these standards in the latter day commercial environment.

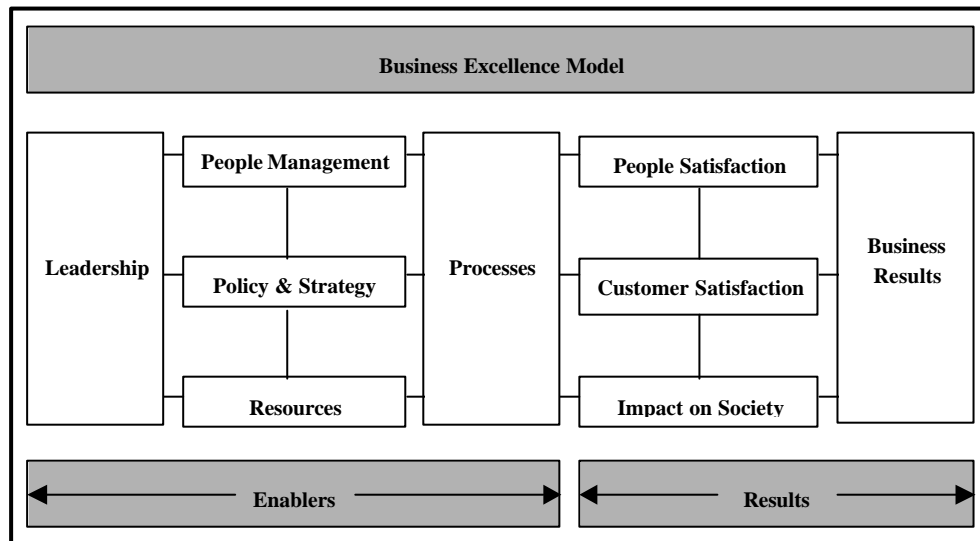


Figure1

Summary of business excellence model

Research and the experience of industry leaders indicates that the achievement of an effective culture requires:

- Effective senior management leadership, including demonstration of management commitment to go beyond compliance via communications, reward of safe behaviours and consistent decision making and actions;
- Middle management and supervisors actively promote health and safety, with apparent backing from senior management;
- Personal accountability and ownership of safety;

- A set of rules, procedures and ways of working that facilitate safe working practices;
- Clear definition of the types of behaviours expected of management and staff reinforced by training, performance feedback and consistent peer/management rejection of undesired behaviour;
- Risk awareness, an understanding of the relative risk posed by hazards;
- Allocation of resources, training and supervisory support that gives people the competence and confidence to achieve high standards;
- A process of two way communication between management and workforce, involving both formal and informal forms of contact;
- Consideration of health and safety impacts of management and operational decisions as part of day to day deliberations;
- Active participation of staff in the development of safety goals and systems, and;
- A sense of trust, teamwork, openness and confidence between peers, staff and management, which allows staff to raise safety concerns and search for effective solutions in an atmosphere of constructive intolerance of unsafe conditions.

However, for the improvement to be effective and sustained, the organisation must have a clear view of what its cultural norms should be, how these may be achieved and whether (after implementation of agreed initiatives) they are being achieved. At the outset it is also necessary to have an understanding of the gaps between these cultural goals and the current culture displayed by the organisation, i.e. some form of baseline assessment. Cultural norms cannot be defined in isolation by management, but must instead involve all key stakeholders, such as regulators, customers, staff and contractors - to ensure that the norms are appropriate and meet expectations of all parties. This requires a process that facilitates this dialogue and translates norms into behavioural guidelines and targets that people can use to guide their behaviour and gauge progress. All of these features and processes are defined as “enablers”, those processes required to “enable” the organisation to achieve an effective safety culture.

Where the organisation’s work relies on the activity of contractors and suppliers, the achievement of an effective safety culture requires dissemination of cultural goals to suppliers and shared commitment to achieving a consistent standard of behaviour.

As with all areas of organisational performance, the extent to which goals have been achieved can only be reliably gauged if the results of initiatives are measured. Therefore, the model places heavy emphasis on assessing how stakeholders perceive of the organisation and measuring the “behavioural results”, in terms such as the number of unsafe acts and violations. These elements are the “results” part of the model, each one providing measurement of the outcome of the organisation’s attempts to improve and sustain its safety culture. The model presumes that the organisation should use external as well as internal reference points when assessing its performance, thereby facilitating learning and development.

CONCLUDING STATEMENT

The achievement of an effective safety culture is recognised to be an important part of achieving and maintaining satisfactory standards of health and safety performance. The SCIM described herein should provide a model for the development and maintenance of an effective safety culture. Together with appropriate safety management systems and structures, this should provide a sound basis on which to assure the human element of safety.

GUIDANCE ON APPLICATION OF THE SCIM

GETTING STARTED

Figure 2 illustrates the sequence in which it is advised that organisations that are “starting from scratch” apply the elements of the SCIM. The approach in the figure suggests a four-stage process.

- First, the organisation should develop an understanding of what the “key stakeholders” expectations of the organisation are in the area of safety culture and, simultaneously, assess the current safety culture of the organisation. This can be conceived of as a “preliminary status review”, as incorporated into ISO14001 and the BSI 8800 Occupational Health and Safety Standard.
- Secondly, based on an understanding of stakeholders expectations and the match of the current culture to these expectations, the organisation should be in a position to define what the organisation’s cultural goals should be (its policy) and thence communicate these goals across the organisation.
- Thirdly, having defined and communicated the organisation’s goals, the next step is to develop and implement the arrangements, structures and processes required to achieve these goals, such as empowering staff, providing effective leadership, removing organisational obstacles to acceptance of safety rules etc.
- Fourthly, once the initial changes have been made, the next stage is to set up a process for the continued review and development of safety culture, including setting up processes to continue the planning and assessment of safety culture, and assessing stakeholders perception of the organisation’s safety culture.

Based on the safety culture results and continued monitoring of stakeholder expectations, the organisation should thereafter set about a process of continuous improvement. This process of continuous improvement should include updating its view of cultural goals in line with changes in stakeholder expectations as well as modifying its approach to the achievement of these goals in light of feedback on the success of cultural developments.

For this process to succeed all elements of the SCIM need to be operating, including those elements noted in point 1 above. Thus, consultation with stakeholders should be viewed as an ongoing requirement, rather than a one off exercise. This reflects the view that expectations and norms may change over time and that the organisation’s culture needs to respond to these changes. An effective safety culture should be conceived of as an appropriate match between the behaviours, values and attitudes of members of the organisation with the expectations of stakeholders. As expectations may change, so should the behaviours, values and attitudes of the organisation. In this way, an effective safety culture is not a static entity, but an ever developing and ever improving set of behaviours, values and attitudes. This model of safety culture also implies that the definition of an effective culture requires an external reference point, namely external stakeholders, and cannot be defined solely by reference to the values and expectations of management and staff within an organisation.

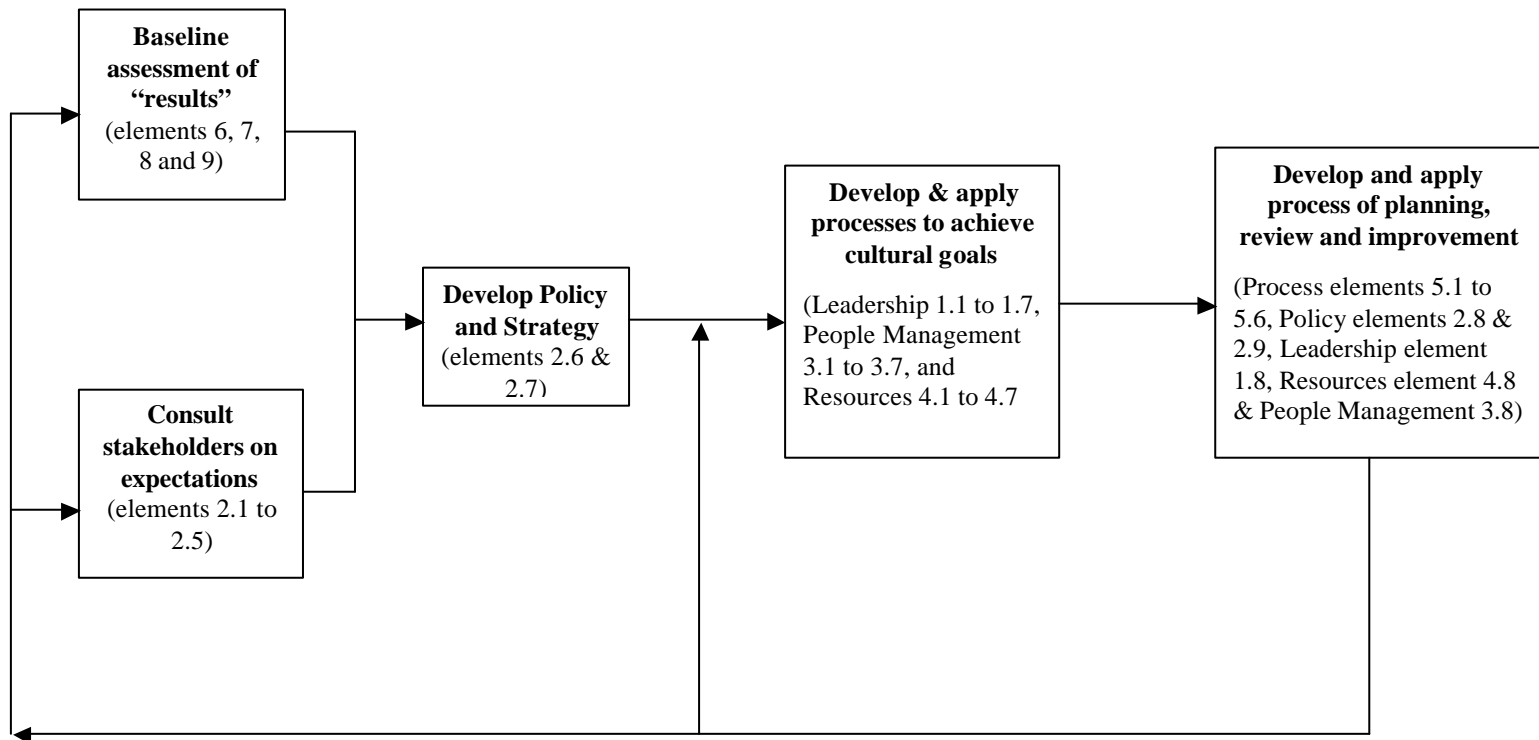


Figure 2
Getting started: phasing of application of SCI

ONGOING APPLICATION

On the point of sequencing of improvements, it is advised that as a general rule, Policy and Strategy and Processes be well-developed before improvements to other elements are specified. The aim here is to ensure that improvements to (say) people management are directed towards achieving an appropriate set of goals and that the methods of achieving these goals are based on a full and valid understanding of current problems and how these may be best overcome. Otherwise, it is generally advised that the demonstration of clear and strong commitment of senior management (leaders) and the creation of structures to facilitate staff participation should precede improvements in People Management and Resource Management. This is on the grounds that research shows that it is difficult to get staff to accept the validity of new behavioural norms if they do not believe that management are truly committed to these norms or if the structure of the organisation hinders realisation of these behaviours.

Otherwise, the improvement of sub-parts of elements should be prioritised in accordance with the results of the assessment. Clearly though, there should be a connection between the observations made under the “Results” part of the model and the actions taken to improve the “Enabler” elements, and a comparison of results with internal targets set in the Policy and Strategy and Processes elements. The comparison of Results with such targets can be used to prioritise improvements. This should include a comparison of Customer results and Impact on Society Results with Policy and Strategy to ensure that internal targets continue to match external stakeholder requirements.

CONTRACTORS

In respect of contractors, the SCIM is concerned with the interaction between a host organisation and its contractors. Elements four (Resources) and nine (Behavioural Results) contain questions pertaining to contractor management and performance. These questions should be excluded if the organisation has no contractors.

The SCIM can be applied to a contractor organisation as a separate exercise. In this case, the questions relating to contractors would concern its sub-contractors.

SCORING SCHEME

The scoring scheme is based on that used within the BEM in so far that the scoring scales are the same. However, as the number of points in each element is different the scoring formula has been modified accordingly. Also, the weighting of elements has been modified.

As explained below, the SCIM can be “scored” in two ways. The first method simply entails a judgement of whether an element has been satisfied. The second method entails scoring individual questions and calculating both element specific and overall scores.

METHOD 1: ELEMENT LEVEL JUDGEMENT

The nine elements of the SCIM are summarised in Table 1 and 2. Table 1 summarises the enablers and table 2 summarises the results. These tables can be directly used in the assessment of an organisation, by asking to what extent the organisation satisfies each of the points. Elements that are wholly satisfied can be coloured green, partly satisfied yellow and unsatisfied elements red. The elements in Tables 1 and 2 are listed in approximate order of recommended implementation, starting from the bottom of each column. Thus, for example, it is suggested that the development of manager leadership skills needs to be progressed before they are able to effectively demonstrate their commitment and communicate well with staff.

A second, alternative, version of this ladder is presented in Appendix A.

The version in Appendix A describes the progression of safety culture from poor to good. Thus, the version in tables 1 and 2 illustrates the order of implementation whilst the version in Appendix A describes the quality of a culture.

The version in Appendix A can, in the main, be scored in the same way as tables 1 and 2. I.e. colouring boxes green, yellow or red. However, it includes a row of “negative” features present in “poor” safety cultures. Where these features are present the boxes (in row –1) should be coloured a dark grey. Boxes in row 0 to 6 can be coloured green, yellow or red as before. In theory, as an organisation improves, boxes in the higher rows will turn from red to yellow to green, with no boxes in row –1 coloured grey.

Table 1
Sequence of SCIM Enablers Implementation (bottom to top)

Leadership	Policy & strategy	People management	Resources	Processes
			Contractor management practices reviewed	
			Contractor safety culture reviewed	
	Safety culture policy & strategy is reviewed		Contractors maintain continuity	
Leaders review & develop own performance	Drift in definition of acceptable behaviour is checked	People management practices are reviewed	Contractors impact on organisation's culture is managed	
Leaders create structures to promote safety culture	Behavioural guidelines are disseminated	Safe behaviours are recognised & rewarded	Congruent contractor-client culture achieved	
Leaders have a clear set of cultural goals	Expectations are translated into behavioural guidelines	Rules, procedures, etc facilitate safe behaviour	Safety is integrated into contractor selection	Progress in meeting targets is tracked
Leaders ensure staff support, e.g. training, reinforces culture	Stakeholder, moral, & commercial expectations are balanced with risk	Staff are competent & have confidence in themselves	Resource management processes are reviewed	Auditable targets are set for safety culture improvement
Leaders communicate well with external organisations	Moral & social duties are recognised	Open communication of views, beliefs, & concerns	Safety integrated into design & procurement	Open mind to reasons for cultural & behavioural problems
Leaders communicate well across the organisation	Impact of commercial decisions on culture is recognised	Team working is encouraged and facilitated	Risk assessment is used in business decision making	Impact of decisions on H&S are taken into account
Leaders demonstrate commitment	Risks are understood	Staff accept personal accountability for H&S	Safety integrated into financial resource prioritisation	Effective methods of identifying ways of improving safety culture are applied
Development of leadership skills	Stakeholders participate in defining cultural goals	Staff participate in developing & implementing H&S arrangements	Staff development is adequately resourced	Factors influencing safety culture are systematically identified

Table 2
Sequence of SCIM Results Implementation (bottom to top)

Customer satisfaction	Employee satisfaction	Impact on society	Behavioural results
	There is a common understanding of norms and expectations		Contractors behaviour matches industry leaders
	Employees are satisfied with the standard of safety		Standard of management behaviour, such as violations & unsafe acts, matches industry leaders
	Employees have confidence in supervisors & management		Standard of employee behaviour, such as violations & unsafe acts, matches industry leaders
Organisation's cultural goals match customer & regulator expectations	Employees feel they own safety	Society at large perceives organisation cares about safety of others	Contractors behaviour matches internal targets
Customers perceive organisation committed, responsible & able to self-regulate	Employees have confidence in safety arrangements	Society at large perceives organisation as responsive to societal concerns	Standards of management behaviour match internal targets
Regulator perceives organisation as committed, responsible & able to self-regulate	Employees have a valid perception of risk they face & accept need for risk controls	Society at large perceives organisation as committed, responsible & able to self-regulate	Standards of employee behaviour match internal targets

METHOD 2: SCORING OF INDIVIDUAL QUESTIONS

Each of the questions is given a score of 0 to 100 based on the judgement of the assessor(s). The judgement relates to the extent to which the examples cited for the question have been implemented and whether the standard of performance on this point is high or low. The score bar used is provided below along with an explanation of the scale in Table 3. The scoring can be based on individual assessor's judgement or a consensus or average amongst a group of assessors. Also, "evidence" from surveys or audits may be used. It is also possible to use the guidance provided under each question to generate a score. That is, the assessor can judge what proportion of points noted under each question have been fulfilled. If, for example, half the points are fulfilled a score of 50 could be assigned.

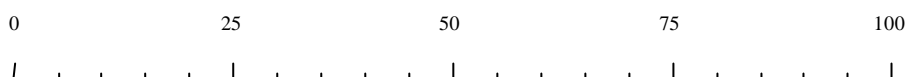


Table 3
Explanation of scoring scale

Points	Explanation
0	None or minimal anecdotal evidence of activity on this point.
25	Some evidence of activity on this point, such as some aspects of a results element are measured, some examples of good leadership communications etc.
50	Evidence of soundly based approach that delivers about half of the examples cited but overlooks some important points.
75	Evidence of refinement and improvement of activity, results show sustained high standards of performance and good integration of activity into normal operations and planning.
100	Systematic and refined activity has been totally integrated into normal working patterns (but are still visible), with results showing organisation is best in its class and evidence that the activity will be sustained over time. Excellent comparisons with internal targets.

CALCULATION OF POINTS

The points for each element are added up and divided by the number of sub-parts.

For example,

Leadership, which has 8 sub-parts would be scored as follows (hypothetical scores are used in the example):

$$\frac{50 + 40 + 80 + 50 + 60 + 50 + 70 + 50}{8} = \frac{450}{8} = 56\%$$

Next, the assessor applies the appropriate weightings to the score by multiplying each of the criteria totals as follows:

Leadership $\times 1.0$

So, the score for the leadership element is:

$$56 \times 1.0 = 56$$

Weightings for rest of the elements are:

Policy & Strategy $\times 1.0$

People Management $\times 1.0$

Resources $\times 1.0$

Processes $\times 1.0$

Customer Satisfaction $\times 1.25$

Employee Satisfaction $\times 1.25$

Impact on Society $\times 1.25$

Behavioural results $\times 1.25$

Once a weighted score for all the elements is obtained, as illustrated in Tables 4 and 5, all the scores can be added together to achieve the overall score. The overall score can be presented in tabular format, as shown in Table 6.

Whilst each part of the SCIM can be scored separately, there are some clear linkages between the elements. In particular;

- The Employee satisfaction results and Behavioural results should provide a measure of the success of People Management and Resource Management;
- The four results elements should provide the basis on which to review the success of the Processes element;
- The Customer results and Impact on Society results should reflect the extent to which Leaders' external communications and Policy and Strategy have met the expectations of external stakeholders.

It is also possible to trace links between sub-parts of the SCIM, such as Leaders' efforts to create structures to allow participation (1.7) linking to staff participation (3.1) and employee ownership of safety (7.3).

In this way, the SCIM should ideally be applied and assessed as a whole rather than as a series of disjointed elements, with the assessment of one element taking account of the fulfilment of related elements.

**Table 4
Enablers scoring**

Enablers Criteria										
	1	%	2	%	3	%	4	%	5	%
	1.1		2.1		3.1		4.1		5.1	
	1.2		2.2		3.2		4.2		5.2	
	1.3		2.3		3.3		4.3		5.3	
Sub-parts	1.4		2.4		3.4		4.4		5.4	
	1.5		2.5		3.5		4.5		5.5	
	1.6		2.6		3.6		4.6		5.6	
	1.7		2.7		3.7		4.7			
	1.8		2.8		3.8		4.8			
			2.9				4.9			
							4.10			
							4.11			
Total (add score)		0		0		0		0		0
Divide by no. of sub-parts		8		9		8		11		6
Score awarded		0		0		0		0		0

**Table 5
Results scoring**

Results Criteria								
	6	%	7	%	8	%	9	%
	6.1		7.1		8.1		9.1	
Sub-parts	6.2		7.2		8.2		9.2	
	6.3		7.3		8.3		9.3	
			7.4				9.4	
			7.5				9.5	
			7.6				9.6	
Total (add score)		0		0		0		0
Divide by no. of sub-parts		3		6		3		6
Score awarded		0		0		0		0

Table 6
Overall scores

Calculations of Total Points				
Criterion	Score Awarded (S)	Factor (F)	Points Awarded (=S X F)	Maximum possible points
1. Leadership		1.0	0	100
2. Policy & Strategy		1.0	0	100
3. People Management		1.0	0	100
4. Resources		1.0	0	100
5. Processes		1.0	0	100
6. Customer Satisfaction		1.25	0	125
7. People Satisfaction		1.25	0	125
8. Impact on Society		1.25	0	125
9. Behavioural results		1.25	0	125
Total points awarded			0	1000

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APPENDIX A	PROGRESSIVE SAFETY CULTURE LADDER
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1 LEADERSHIP

The leaders of an organisation, including executives, management and supervisors have a pivotal role in the achievement of an effective safety culture. Their words, deeds and actions act as precedents by which staff gauge what is really expected of them. If leaders set an inappropriate example or behave inconsistently, staff may take this to mean that they too should assign a low priority to safety. Inversely, the clear and consistent demonstration of commitment by leaders can motivate staff to change their behaviour and attitudes.

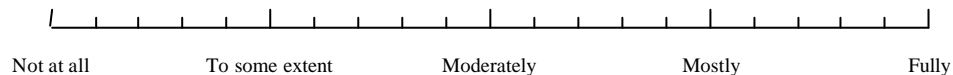
Without effective leadership, staff and management alike are unlikely to effectively implement health and safety arrangements or engage in the process of continuous improvement.

This section is about the behaviour of all leaders in leading the whole organisation towards achieving excellence in the area of safety. This includes their involvement in leading the improvement, how they ensure that everyone in the organisation is aware of their part in continuous improvement, how they recognise and reward individual effort, how they provide resources (provision of information, instruction and training) to help initiatives and how they promote the success of their organisation in achieving safety excellence, such as competing for appropriate awards? Whilst senior management must commit the organisation to the achievement of high standards, this commitment must be communicated to the workforce, contractors and colleagues through their day to day behaviour and decision making.

The goals of the guidance in this section are to ensure that senior and middle management are able to provide effective leadership, appreciate the importance of their own behaviour in creating the right “atmosphere” and maintaining a sense of commitment, as well as creating the structures for allowing staff to participate in and contribute to the achievement of safety.

1.1 DEVELOPMENT OF SAFETY LEADERSHIP SKILLS

Have senior management developed the necessary skills to provide appropriate and effective leadership in the development of an effective safety culture?



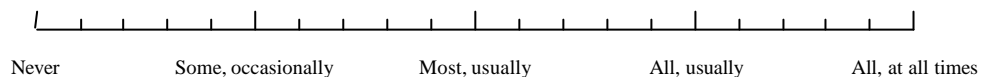
This is likely to include formal training, coaching, workshops and behavioural guidelines on issues such as:

- the need to show a caring and humanistic attitude.
- the need to actively listen to stakeholders.
- the need to act as a responsible corporate body.
- For example is there an understanding of:
 - how management behaviour influences the perceived importance of safety amongst staff and other management as well as people outside the organisation

- how adverse or poor safety performance can impact the organisation and its commercial performance
- the organisational and managerial influences on behaviour and attitudes
- how social, individual and work factors interact to lead to unsafe behaviours
- how to recognise and reward appropriate behaviours
- how to maintain trust and respect
- how to demonstrate commitment to safety
- how to respond to examples of unsafe behaviours, and the importance of responding appropriately to these behaviours
- how to consult effectively with stakeholders inside and outside the organisation
- how to facilitate and encourage participation, such as listening skills, removing organisational barriers etc.

1.2 COMMITMENT

Are the leaders demonstrating commitment to the organisations' goals regarding its safety performance and behaving in a manner consistent with its values?



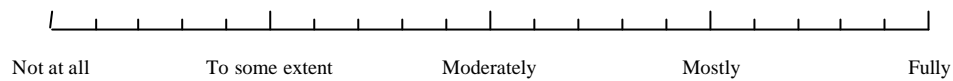
For example:

- leaders take proactive steps to plan and organise work to maximise safety, minimise production-safety conflicts, rather than only intervening when conflicts arise
- senior management are involved in formal safety deliberations, such as safety policy formulation, offering constructive suggestions in a proactive manner
- reports on safety performance are received by senior management and publicly commented upon
- senior management take explicit and continuing steps to ensure that their interest in, and commitment to safety, is known to all personnel
- safety is seen to be as much the responsibility of senior and middle management as any other area of management responsibility
- positive commitment to safety is visible throughout the management style. For example;
 - safety personnel have a high status within the organisation
 - managers hold regular meetings with more senior management which are devoted solely to safety
 - questions about safety are routinely raised by management as part of everyday business, etc

- commitment is demonstrated by the behaviour and decisions of leaders at all levels in the organisation. As such they recognise that accidents, ill health and incidents can result from failings in management control and not just from faults of individual employees. Hence Leaders are aware of their obligation to give strong and active commitment to safety, and to provide clear definition of the boundaries of acceptable behaviour, and to lead by example
- senior management are involved directly in the review of serious incidents and decisions on the remediation of their causes but not in a manner that stifles the openness of the investigation

1.3 INTERNAL COMMUNICATIONS

Do the leaders explain their commitment to safety to the staff and appreciate the importance of having good safety communications?



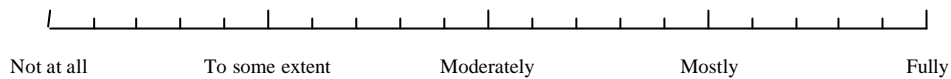
For example:

- leaders participate in setting safety targets and explaining these to staff
- there is a mix of formal and informal means of communication between leaders and the workforce
- safety committees act as joint working parties, looking at strategic issues
- there is a swift response from management to concerns and queries raised by the workforce and/or other managers
- managers and supervisors discuss “shop floor” safety matters with the workforce, listening to concerns and queries
- leaders display fairness and prudence when evaluating safety performance, violations, errors, poor behaviour etc
- leaders adopt a democratic and listening style of management rather than an authoritarian style
- safety practitioners have a means of direct communication with leaders
- the workforce have means of communicating concerns and queries to leaders, such as anonymous reporting, safety committees, safety representatives, routine meetings with management:
- leaders clearly explain safety goals and objectives to their staff
- managers and supervisors take an interest in the personal as well as the work problems of their subordinates.
- leaders discuss any safety concerns the staff may have and hold group discussions to find solutions to the safety problem.
- leaders keep their staff informed about outcomes of any meetings regarding safety matters.

- leaders provide feedback on the unacceptability of any unsafe behaviours, on the part of staff or management, that have contributed to an accident or incident
- leaders communicate effectively with leaders from different departments, other plants etc.
- leaders provide quick and effective action to complaints from their workforce regarding their working environment, safety etc.

1.4 EXTERNAL COMMUNICATIONS

Do the leaders maintain a good relationship with the health and safety regulators, customers, suppliers and general public?

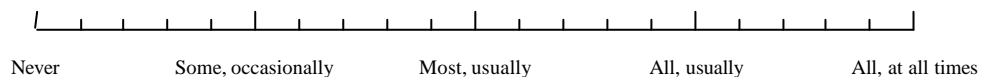


For example:

- senior management have contact with the safety regulators
- leaders participate in dialogue with regulators on safety matters
- leaders effectively communicate the organisation's approach and commitment to safety to external organisations, e.g. publications, applying for awards etc.
- leaders provide the response to queries or complaints about the organisation's safety performance
- there is a constructive and open relationship with external organisations
- leaders do not impose inappropriate draconian controls on who may communicate with regulators in particular, due to fears of what might be revealed to the regulator

1.5 SUPPORT

Do the leaders make sure that staff are provided with adequate resources in terms of technology, information, the physical conditions in which the staff are working and their training?



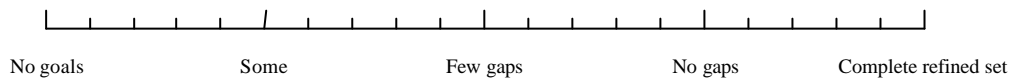
For example:

- ensuring that the staff are adequately trained, instructed and motivated to follow the safety procedures
- leaders able to identify weaknesses in the management of subordinates and specify appropriate interpersonal skills and communication development needs

- leaders assess the quality of the training and general usefulness, relevance and applicability of the training
- leaders make sure that staff are released from their commitments so that they can participate in safety training or other improvement activities
- leaders share their experiences and the lessons learned with their staff
- leaders assess the staff's workload and during times of heavy workload, and they ensure that staff are reminded that unnecessary haste and shortcuts are inappropriate
- the information requirements of staff are understood and leaders take steps to ensure up-to-date information is sourced and accessible
- leaders are concerned to provide a working environment that suits the activities and tasks of their staff
- leaders are concerned to provide their staff with the technology suitable for their activities and tasks

1.6 GOAL SETTING AND REVIEWING

Do the leaders have a clear set of goals regarding what they need to do to achieve an effective safety culture? How do leaders check that the goals they are pursuing are consistent with the overall safety objectives of the organisation?

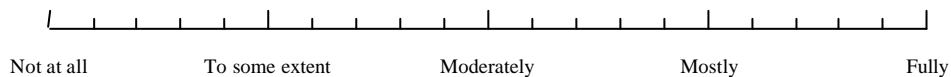


For example:

- leaders goal-oriented and have clear set of goals and objectives for their safety performance
- leaders regularly review the compatibility of their performance goals (safety and non-safety goals) with the organisation's cultural objectives
- leaders recognise and reward safe behaviours

1.7 CREATING STRUCTURES AND PROCESSES THAT PROMOTE SAFETY CULTURE

Are leaders involved in ensuring that the organisation's approach to facilitating the involvement of staff in the development and achievement of the safety culture is developed and continually improved?

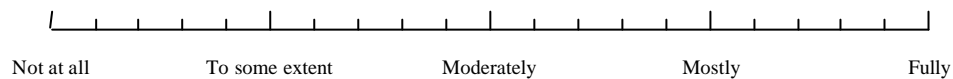


This may include involvement in:

- aligning the organisation's reward and grievance procedures with the type of culture sought for by the organisation, for example
 - links between its incident investigation process and disciplinary processes suit its safety culture
 - links between safety performance and staff reward schemes suit its safety culture
 - pay and reward schemes, including bonus awards, do not undermine safety culture
- reviewing and changing how the organisation gets its staff to participate in the review and improvement of safety
- stimulating and encouraging empowerment of staff through organisational change, such as removing excessive layers of management and clearly empowering people to make decisions within their area of authority
- ensuring a process exists for acquiring feedback and opinions of staff on the safety performance of the organisation and its management

1.8 REVIEWING THE LEADERS' PERFORMANCE/ SELF-IMPROVEMENT

Is the leadership performance of managers, director and supervisors reviewed, and how open are they to feedback on the need to improve their managerial style?



For example:

- leaders willing to learn new things and experiment with their management style
- a leader's progress in satisfying cultural goals is assessed, such as by means of a managerial style checklists, staff feedback etc.
- there is peer review of managerial styles
- leaders receive feedback on how others, including their staff, perceive their commitment to safety
- incident investigations are used as opportunities to review and learn constructively about leadership issues

2 POLICY & STRATEGY

This section looks at:

- how the organisation develops its health and safety cultural ideology, norms and goals;
- how it translates its cultural ideology into a set of goals, values (the expectations on which people base their behaviour), and vision (the kind of organisation we would like to be);
- whether the organisation's norms reflect the principles of a good safety culture and;
- how it monitors whether its ideology, norms and goals remain consistent with internal and external stakeholder requirements and expectations.

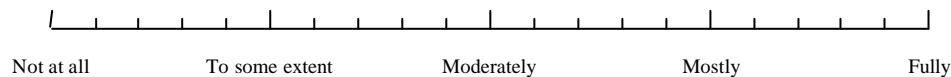
This includes consultation with key stakeholders, including employees, regulators, management, customers and general public, regarding their safety expectations, opinions and perceptions, as well as the utilisation of risk assessment in defining acceptable standards of behaviour and safety norms. The terms ideology, norms and goals include issues such as:

- should the organisation explicitly pursue a policy of zero accidents, world class performance or just regulatory compliance?
- is personnel safety to take priority over production schedules?
- are staff expected to own safety?
- should potential safety problems always be proactively assessed before pursuing business and/or general management decisions?

Thus, they cover both the standard of performance sought by the organisation and the style of behaviour expected of management and staff. The goal of this section is to ensure that a valid and appropriate "code of behaviour" is effectively disseminated across all levels of the organisation. This "code" should reflect the risk posed by hazards and the expectations of all key stakeholders. Also, a means should exist for reviewing and updating this code in line with changes in risk and stakeholder expectations.

2.1 CONSULTATION WITH STAKEHOLDERS

Are key stakeholders involved in the process of defining corporate safety goals, values and norms? Stakeholders can include staff, management, suppliers, customers, regulators, other agencies (such as emergency services), general public etc.



For example:

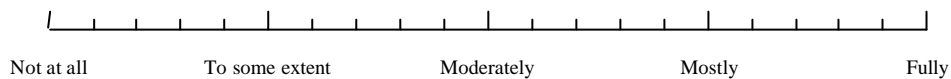
- consultation is undertaken with public, customers, regulators, employees and other key stakeholders about their health and safety concerns, perceptions and expected standards of behaviour on the part of the organisation

- information is gathered on what the future safety expectations of stakeholders may be, as well as current expectations
- steps are taken to identify and take account of any formal risk criteria and guidelines on the acceptability of risks used by stakeholders
- the reaction of stakeholders to examples of “good” and “bad” behaviour in other organisations is identified
- there is recognition of customer and societal expectations as expressed by regulations, customer standards etc.

Expectations may cover: the standard of control for a hazard, the extent to which the organisation should err on the side of safety in cases of uncertainty or trade off between safety and commercial pressures, what level of risk might they tolerate, the extent to which the company should take public safety concerns into account, etc. Such consultation may be achieved through opinion surveys, ad hoc or planned meetings with stakeholders, safety committees, etc.

2.2 UNDERSTANDING OF HAZARDS AND RISKS

Is risk assessment used to identify the full range of hazards that pose a risk to staff, contractors, customers and the public?

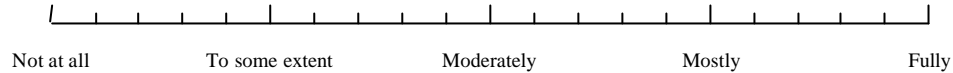


Typical features:

- the organisation is objective and systematic in how it assures hazards are assessed with the aim of ensuring that the level of control is proportionate to the risk
- information is acquired on all forms of ill-health, injury and harm that might be associated with the organisation’s activities
- assessments of the effectiveness of safety management systems, engineered safety controls and emergency preparedness are used in risk assessments
- there is a policy of assessing and managing all health and safety hazards, and not just those of concern to third parties
- the understanding of risks and hazards is not restricted to a few specialists

2.3 RECOGNITION OF INTERACTION OF BUSINESS DECISIONS WITH HEALTH AND SAFETY

Does the organisation proactively assess how commercial decisions, business management policies and organisational changes arising from business pressures and objectives may impact the safety performance and culture of the organisation?



This may include consideration of:

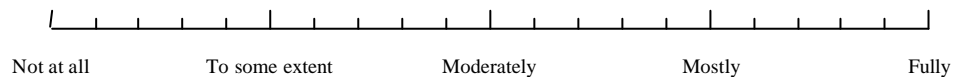
- how changes in management, resourcing and/or staffing levels may impact the perceived commitment of the organisation to health and safety
- how outsourcing (or leasing of building) may impact the safety culture
- how changes in the style of management may impact the perceived priority awarded safety.

Typical features include:

- the organisation completes an assessment such as a “safety case” or equivalent before the change is instituted
- managers are trained to recognise how business decision making has the potential to impact health and safety, or at least how it impacts the perceived commitment to health and safety
- reviews are completed of how new business priorities may interact with the priority awarded health and safety.

2.4 RECOGNITION OF MORAL AND SOCIAL DUTIES

Does the organisation recognise that the expected standards of control for a hazard should reflect moral, social and ethical duties as well as the scale of adverse publicity, regulatory attention and financial loss that might arise from failure to control that hazard?



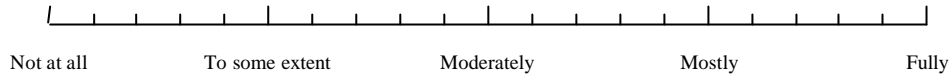
Typical features:

- there is a recognition and acceptance of the duty to manage all hazards which pose a significant risk to health and safety of employees or the public
- there is a recognition that the weight assigned to individual hazards may be greater than their potential impact on the business
- it is recognised that the organisation has a moral imperative to manage all hazards rather than confining its attention to those hazards which pose a threat to the business

- whilst recognising that the management of health and safety can benefit the business, it is also accepted that business should not be conducted at the expense of health and safety in those cases where a hazard has little potential impact on business performance
- the methods of control are acceptable, ethically, to all those that are subject to them, for example the method of collecting samples for monitoring substance abuse

2.5 BALANCING EXPECTATIONS

Is the organisation able to balance and reconcile the expectations of stakeholders with the results of objective risk assessments and legal/social duties?

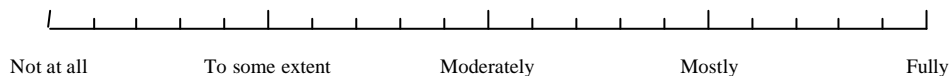


Typical features:

- the perceptions of risk held by key internal and external stakeholders are taken into account in the formulation of safety goals and behavioural norms, but not to the detriment of health and safety in those cases where risk perceptions over/under-estimate the objective level of risk
- a dialogue is maintained with all stakeholders, in which the organisation conveys the constraints it is working under, such as the requirements/expectations of different stakeholders. For example, the legal framework in which the company operates and the limits this places on the organisation's behaviour and goals are communicated
- the results of risk assessment and the implications for the relative weight to be assigned to various hazards are drawn on in consultations with stakeholders, and
- independent opinion is sought where stakeholders contest the impartiality of the organisation

2.6 TRANSLATION OF EXPECTATIONS INTO A SET OF BEHAVIOURAL GUIDELINES

Is the organisation able to translate its cultural ideology into behavioural norms that employees (staff and management) can use to guide their day to day behaviour?



Typical features:

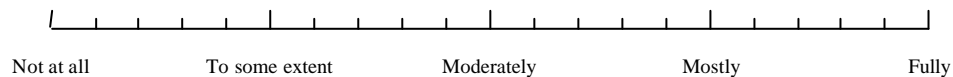
- clear definition of health and safety policy, performance standards and behavioural norms for each class (e.g. workplace health risks vs. public safety risks) of hazard
- a means of translating corporate safety norms and expectations into a set of meaningful behavioural guidelines and operating/managerial limits, covering, for example:

- when to err on the side of safety when a trade off must be made between safety and production or when the safety of operations is unclear etc
- when to delay or interrupt operations due to safety concerns
- when to report hazards, safety concerns and possible faults
- how to react to peers and subordinates concerns and queries about safety
- when to use discretion (as opposed to refer to colleagues/superiors) if confronted with an uncertain risk or impending danger
- when to confer with others and seek consensus on decisions
- examples of how to incorporate health and safety into general management and operational decision making
- how to balance health and safety needs with other demands when allocating time and resources
- which decisions require consideration of potential impact on health and safety
- when and how to assess the potential impacts on health and safety of business decisions
- how much time should be devoted to communicating and discussing health and safety issues
- what level of assessment of health and safety issues should be completed before coming to a decision on (say) outsourcing, planning projects, developing a design etc
- acceptability of temporary solutions to engineering faults and unsafe conditions
- the role of team working and participation in safety related decision-making
- promotion of what comprises “constructive” intolerance of unsafe acts, such as advising colleagues that their unsafe behaviour is not socially condoned

Such guidelines are likely to cover the priority and weight awarded to health and safety in decision making and day to day operations, but will also extend to specific guidelines on the types of behaviours expected in specific circumstances. These guidelines may include specific “rules”, decision-making guidelines, lists of safe and unsafe behaviours, examples of the type of decision to be made in different scenarios etc.

2.7 COMMUNICATING AND IMPLEMENTING BEHAVIOURAL GUIDELINES

Does the organisation disseminate these norms and behavioural guidelines?



This may include:

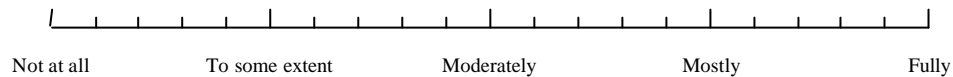
- general induction into the organisation’s health and safety policy and norms on recruitment
- general explanation of the relative risk posed by the range of hazards associated with the organisation’s activities

- explanation of specific examples of “appropriate” behaviour on assignment to a particular post or task
- explanation of specific examples of how to react to unclear/ambiguous signs of danger when conducting operations
- examples of what to do when you are unclear on how to complete a task safely and/or if the procedures do not appear to be appropriate
- examples of how to reconcile trade-offs between safety and production
- examples of how to react to colleagues expressed concerns about the safety of a proposed operation or action.

Dissemination may be via formal training, day to day feedback and coaching from superiors, documented policy, toolbox talks, feedback from accident/incident investigations, behavioural safety schemes, audit schemes etc.

2.8 CHECKING DRIFT IN DEFINITION OF ACCEPTABLE BEHAVIOUR

Is the organisation able to detect and recognise that the definition of acceptable behaviour/risk applied in day to day decision making has drifted away from that required by the organisation?



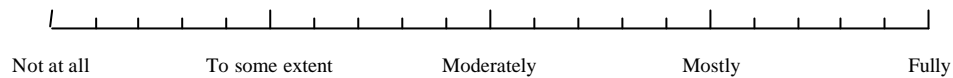
This may relate to, for example, the acceptability of temporary solutions to safety problems (such as temporary screening against radiation), safety margins applied in engineering design, limits placed on the range of tasks a person may perform or hours worked etc.

The checking should be at two levels, namely; are the applied standards of behaviour changing, and; are these becoming “normalised”. Forms of checking may include:

- tracing the judgements underlying those decisions involved in an incident
- tracking over time the safety margin allowed for in design, operations etc
- auditing the behaviour of employees (including management, engineers etc) and the safety margin exhibited in their decision making
- monitoring “compliance” with designated safe and unsafe behaviours

2.9 MEANS OF REVIEWING SAFETY CULTURE POLICY AND STRATEGY

Is the organisation able to recognise and respond to changes in internal and external expectations?



This may include means of tracking stakeholder expectations, comparing stakeholder expectations with company goals and displaying an open-minded attitude towards the adequacy of the organisations' cultural goals.

Typical features may include:

- willingness on the part of management to challenge the adequacy of the behavioural standards set by the organisation
- an outward looking attitude, recognising that the organisation should continuously use external reference points when reviewing the adequacy of its safety policy and ideology
- recognition that stakeholder expectations can change over time and that the organisation must be able to recognise and respond to these changes
- means of regularly reviewing stakeholder expectations and identifying significant changes in these. This may include attitude surveys, staff consultation, reviews of regulations, reviews of regulator reaction to examples of sub-standard performance etc,
- methods of identifying any gaps between corporate goals and societal expectations

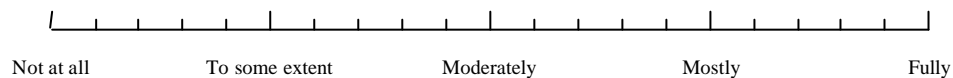
3 PEOPLE MANAGEMENT

This section is about how systems and processes for facilitating the involvement of employees, team working and communication are designed to assist in achieving the organisation's safety norms and expectations.

The way in which the employees of an organisation are managed has an overriding affect on their attitudes and behaviours. Unless positive leadership and policy are matched by supporting management's arrangements the desired behaviours are unlikely to be realised. Indeed, a mismatch between management statement of commitment and actual ways of working may only serve to reinforce and increase distrust and cynicism. Conversely, the active involvement of staff in safety, facilitation of team working and reward of safe behaviour all contribute to a sense of ownership of safety, trust and motivation. This also requires procedures to be valid, balanced and practicable, training to be informative and interactive, and work loads to be reasonable, otherwise staff may not believe or accept management's commitment to safety. Finally, it is also necessary to counter dysfunctional peer attitudes and overcome any unsafe behaviours/attitudes learnt by staff, again through a process of communicating and rewarding safe behaviours. The questions in this section may be answered through examination of management arrangements and feedback on staff attitudes.

3.1 STAFF PARTICIPATION AND EMPOWERMENT

Is staff participation in the development and implementation of health and safety arrangements facilitated?



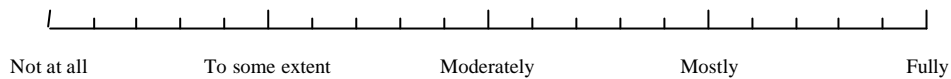
Participation and empowerment may cover, for example:

- people resolve problems proactively rather than referring issues to other people (unless they are outside their remit or beyond their competence) or ignoring them
- people have an appropriate level of discretion to react to signs of danger without needing to refer to a higher authority
- there is staff and management participation in important safety related decision-making, risk assessment, safety audits, development of rules and procedures etc
- there is team working on identifying and resolving safety problems
- the number of levels of management, distribution of health and safety responsibilities and requirements for authorisation of decisions/actions, facilitates rather than hinders involvement of staff in health and safety – typically staff and line management have responsibility for day to day implementation of health and safety arrangements and participate in development of these arrangements, perhaps under leadership of specialist safety staff
- self auditing is encouraged amongst units/teams

- “policing” of compliance with rules and procedures is done in manner which emphasises safety outcomes rather than solely on compliance with the letter of the rules and procedures
- the digression that people have on how best to perform a task is within clear safety limits
- there is staff participation in risk assessment, hazard spotting and remediation through workforce safety teams, safety committees, day to day involvement in safety, etc.

3.2 UNDERSTANDING OF PERSONAL ACCOUNTABILITY FOR SAFETY

Do individuals appreciate and accept their personal accountability for fulfilling the safety tasks within their area of responsibility?

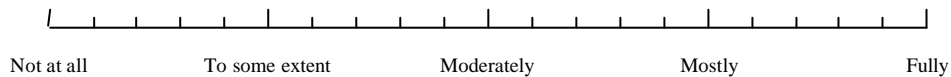


For example;

- it is clearly understood that all individuals in the organisation have responsibility for their own and others health and safety and are accountable for their own actions
- staff and line management have a clear understanding of their responsibility for the development and implementation of health and safety management practices
- people understand the importance of being vigilant and proactive in preventing undesirable events/incidents

3.3 FACILITATION OF TEAM WORKING

Are teams organised so as to facilitate intra-team working and inter-team working?



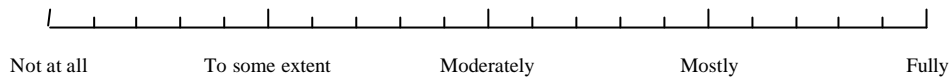
Typical features include:

- the “social code” emphasises team working, debate, mutual support, checking others work to detect errors, exchange of information etc.
- the responsibilities of each team are clearly defined
- all persons who need to co-operate on a routine basis are not hindered in doing so by organisational or physical barriers
- there is a culture of openness and trust within and between teams
- the peer culture recognises and promotes the acceptability of challenging unsafe behaviours

- all members of teams understand that they have joint responsibility for assuring all aspects of the safety of all processes in which they have an involvement – i.e. staff are not compartmentalised into technical functions
- the occasions when two or more teams need to co-operate are clearly defined, along with the issues on which they need to confer
- there are no organisational barriers to team working, communication and decision making.

3.4 FACILITATION OF COMMUNICATION

Are communication links between each organisational unit and between each layer of the organisation effective?

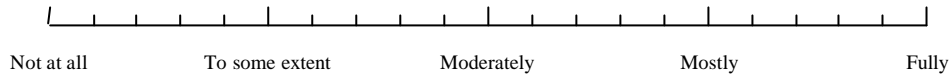


Typical features include:

- the idea that the need to raise safety concerns and flag up possible errors overrides concerns about embarrassment of contradicting colleagues and superiors
- superiors are readily available to answer safety queries and address safety concerns raised by staff
- avoidance of a “blame” culture
- people are not penalised or given social stigma for raising safety concerns
- peer behaviour and attitudes recognise validity of safety concerns – as opposed to a “macho” culture of risk acceptance
- the number of levels of management do not prevent effective communication
- there is an atmosphere of openness and trust between staff and management which allows informal and formal communication on safety matters
- there is staff participation in two-way communication with management about safety concerns,
- staff are encouraged to talk about safety as a natural part of every day work planning
- discussion of the safety of projects, task and organisational changes, are treated as important agenda items at meetings
- management recognises genuine safety concerns raised by the staff to be legitimate and endeavour to deal with these by appropriate means
- formal safety discussions are not hijacked by industrial relations disputes masquerading as safety problems

3.5 DEVELOPMENT OF STAFF COMPETENCE AND CONFIDENCE

Do the methods of developing staff competence reinforce the organisation’s commitment to safety?

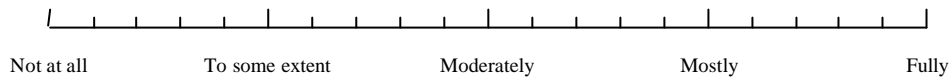


Typical features include:

- the level of training, refresher training and coaching is sufficient to give staff competence and confidence in their ability to perform designated tasks
- coaching and training in health and safety is sufficient to allow all persons to meet required standards of competence and participate effectively in implementing and developing health and safety systems
- education on how risks are typically misjudged and how personal experience may not provide a valid indication of risk

3.6 FACILITATING SAFE BEHAVIOUR

Do the methods of staff management and control facilitate safe behaviour?

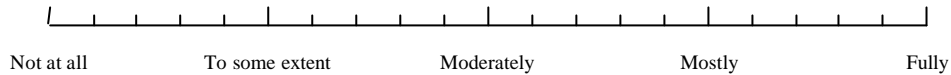


There are means by which staff and management are able to revise and reconfirm rules and procedures;

- procedures and rules are designed along good Human Factors principles, for example they are not undermined by being overly complex for the risks they are controlling
- staff and management education/training provides a clear understanding of the risk posed by each hazard
- there is explicit training on what is and is not acceptable behaviour
- there is instruction on the unacceptability of inappropriate peer pressure
- there is explanation of how violations and unsafe behaviours erode the margin of safety provided by engineered and procedural safety control
- staff and management training provides a clear rationale and understanding of the requirement and justification for each safety rule, control and requirement
- staff resources are managed so as to avoid staff being asked to work outside of their area of competence
- work planning is organised such that staff are not placed under undue time pressure
- staff are supplied with or can readily access all of the resources and support (advice, information and equipment etc) they require to carry out allocated tasks

3.7 REWARD AND RECOGNITION OF SAFE BEHAVIOURS

Do the systems of staff reward and recognition reinforce the organisation's safety culture?



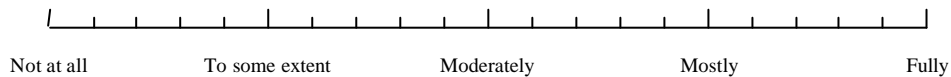
Typical features:

- supervisors and first line management provide consistent feedback on the unacceptability of unsafe behaviours and actively seek to counter dysfunctional socialisation processes and peer attitudes. Likewise, they do not omit consistent feedback on safe behaviours
- payment schemes do not reward production at the expense of safety
- there is explicit recognition of “good” safety behaviour, rather than restricting feedback to poor performance – this may be achieved by use of formal behavioural modification schemes, inclusion of safety behaviour in individual performance reviews or less formal feedback to staff on their performance,
- “macho” behaviours are penalised/reprimanded
- safe/unsafe behaviours contributing to incidents are fed back to staff and management
- staff safety performance is taken into account in personal performance and promotion decisions

It is likely that the reward and recognition of behaviours would be linked to the behavioural guidelines developed under point 2. 6.

3.8 REVIEW OF PEOPLEMANAGEMENT PRACTICES

Are there means of gaining feedback on the effectiveness of the chosen people management processes?



Typical features include:

- staff can give feedback on the chosen methods of management, by such means as surveys, workshops
- the assessment of past incidents recognises the multi-causal nature of accidents. Root cause analysis of incidents looks for the contribution / influences of people management processes
- the perceived practicality of procedures is checked
- there are periodic assessments of staff confidence as well as competence
- the lessons learnt from past incidents are identified and disseminated
- lessons learnt by other organisations are searched for, identified and disseminated

There is a questioning attitude towards the adequacy of people management practices. It is accepted that the management systems may fail and that such failures, including violation of

procedures, should not be attributed solely to the idiosyncrasies of individuals. It is also accepted that there may be lessons to be learnt from the experiences of other organisations in how best to manage people. Queries regarding the effectiveness of management systems are recognised as being legitimate and are not over-ridden on the grounds of positional authority, departmental boundaries, social or political affiliation. Finally, lessons learnt from past experience are retained in the “corporate memory” by retention of a sufficient body of core expertise and/or “databases”.

All practices are continuously under review to ensure timely responses to internal and external changes in organisational structure and business objectives.

4 RESOURCES

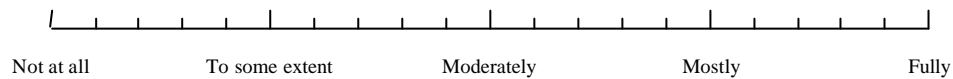
This section is about how decisions concerning internal and external resources are made and how the relationship with external resources is managed so as to help achieve the organisation's cultural goals.

Research has shown that the approach adopted by management to the handling of financial and general business decisions has a significant impact on their perceived commitment to safety. Where business decisions do not appear to have regard for potential safety impacts and/or management decisions regarding safety appear to be inconsistent or arbitrary, then staff tend not to have faith in the organisation's commitment to safety. Therefore, Resources first focuses on how the organisation of health and safety is integrated into general resource management.

Previous research also shows that contractors can operate to a different set of norms than the organisation that holds ultimate responsibility for contractors safety performance. Therefore, this section also examines how external resources are managed.

4.1 RESOURCING STAFF DEVELOPMENT

Is it ensured that the management of internal resources supports and reinforces the organisations' safety culture?

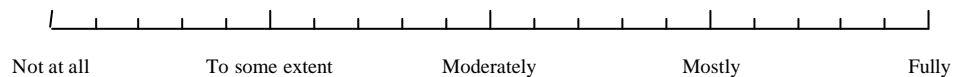


For example:

- sufficient time is allowed in project planning for health and safety briefings, training etc
- sufficient time and resource is allocated to the training and development of staff
- training and personal development needs are identified through a systematic process of task analysis and skills appraisal

4.2 FINANCIAL RESOURCE PRIORITISATION

Is it ensured that the management of financial resources supports and reinforces the organisation's safety culture?

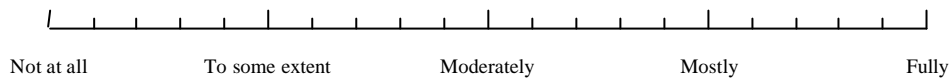


Typical features include:

- the prioritisation of improvements reflects the relative risk posed by hazards, and is guided but not ruled by risk assessment
- safety improvements are proactively planned and funded, with funds made available to eliminate or control hazards on basis of foreseen risk, rather than restricting expenditures to reactive improvements after accidents or incidents
- the potential effects of cost savings on health and safety performance are proactively assessed as part of the process of financial decision making
- financial policies for safety performance are aligned with the overall business policy and strategy
- financial resources are distributed to aid the health and safety policies e.g. training, recruiting, acquiring information such as books, computer software etc

4.3 USE OF RISK ASSESSMENT IN BUSINESS DECISION MAKING

Is risk assessment integrated into general business decision making?

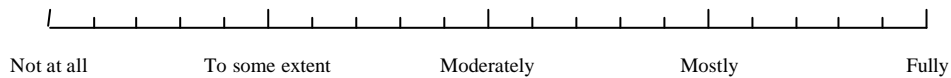


Typical features include:

- management are advised on how personal experience and attitudes may skew the perception of risks, and hence the need to manage them
- objective measures of risk are used to guide management decision making, but not to the exclusion of considering best engineering practice
- the potential impact of business changes on health and safety are understood by management, such as increased workloads creating stress and error
- the occasions on which management need to have regard for potential health and safety impacts of general business decisions are well understood.

4.4 INTEGRATION OF SAFETY INTO DESIGN, PROCUREMENT AND OTHER DEVELOPMENT PROCESSES

Is safety integrated into the design, procurement and other development processes?

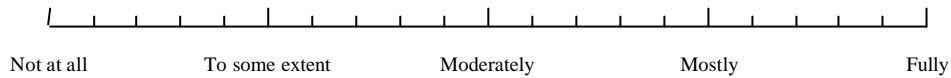


Typical features include:

- health and safety is integrated, in ways appropriate to the situation (e.g. tool selection versus control system procurement), into each phase of the design, procurement and development process
- there are clear criteria regarding the health and safety standards to be achieved in the design and procurement process
- staff are involved in the design, evaluation and procurement of equipment they use or operate
- health and safety considerations are not undermined by the interpretation of interacting policies such as 'lowest compliant bidder'.

4.5 REVIEWING THE MANAGEMENT OF RESOURCES

Is the adequacy, from the perspective of the organisation's safety culture, of resource management assessed?

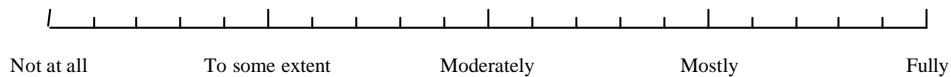


For example:

- the validity of the organisation's prioritisation of safety improvements is assessed
- staff's perception of the host organisation's attitude towards contractor safety performance is assessed
- the effect of outsourcing on morale is monitored.

4.6 INTEGRATION OF SAFETY INTO CONTRACTOR SELECTION PROCESSES

Is it ensured that the selection of suppliers and contractors supports and reinforces the organisation's safety culture?



Typical features may include:

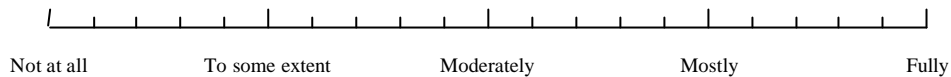
- the conditions of contracts between the host organisation and its contractors support cultural goals by, for example, avoiding linking payment to production without also linking it to safety performance
- past safety performance of contractors involved in safety critical work is awarded high priority in the selection process
- a candidate contractors management practices that can impact safety culture are appraised to a suitable degree during the selection process. For example, consideration is given as to the

contractor's pay and reward system - does it tend toward a destructive or positive influence on its safety culture?

- action is taken in the event that contractors display a poor safety record, such as barring them from tendering or removing them from approved lists
- health and safety considerations are not undermined by the interpretation of interacting policies such as 'lowest compliant bidder'

4.7 ACHIEVING A CONGRUENT CONTRACTOR SAFETY CULTURE

Is it ensured that suppliers and contractors culture supports and reinforces the organisation's safety culture?

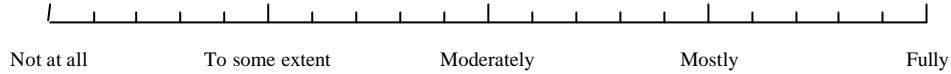


Typical features include:

- artificial organisational boundaries are avoided, for example, splitting project teams according to employer
- the organisations safety goals, norms and expectations are clearly disseminated to its contractors, with a stated requirement that contractors will meet these expectations
- a common standard of safety performance is applied to all contractors (common to the host organisation)
- the organisation's expectations or contractors are communicated along the supply chain (i.e. to sub-contractors and beyond)
- where there should be interaction between contractors this is encouraged and the host organisation ensures it is positive
- the host organisation accepts that it holds ultimate responsibility for overall health and safety performance and that its behaviour sets the environment in which its contractors will operate
- there is a clear delineation of health and safety responsibilities between the host organisation and its contractors – covering all significant safety issues
- contractors participate in the development and implementation of safety systems which affect their work
- there are effective means of formal and informal (ad hoc) communication between the host organisation and its contractors.

4.8 MANAGING THE IMPACT OF CONTRACTORS ON THE HOST ORGANISATION'S CULTURE

Is it ensured that the use of contractors does not impact the maintenance of an effective safety culture in the host organisation?

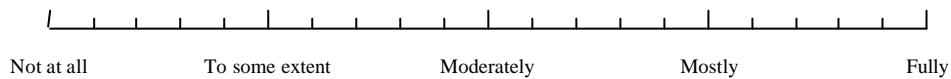


Typical features include:

- plans for outsourcing are communicated and discussed with staff
- there is a clear delineation of health and safety responsibilities between the host organisation and its contractors – covering all significant safety issues
- the importance of ensuring contractors maintain high standards of safety performance is communicated throughout the host organisation
- management and supervisors demonstrate consistent reactions to examples of unsatisfactory behaviour amongst contractors
- team building between staff and contractors working on linked projects/activities provides a sense of affiliation.

4.9 MAINTAINING CONTINUITY IN CONTRACTOR SAFETY PERFORMANCE

Does the organisation ensure that a change of contractor and/or changes in a contractor's organisation cause minimum disruption?

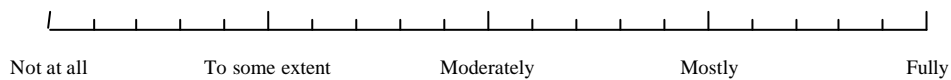


The organisation ensures:

- within its contractors there are suitable processes of handover between outgoing and incoming staff
- there is an adequate induction for new contractor staff
- there is a suitable handover process between outgoing and incoming contractors

4.10 MONITORING THE SAFETY CULTURE AND PERFORMANCE OF CONTRACTORS

Does the organisation have in place a process of monitoring contractor safety culture and performance?



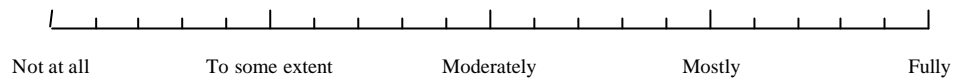
Typical features:

- requiring contractors to measure and report on safety performance

- requiring contractors to monitor and report on safety culture within their organisation. This may be done by contractors participating in the host organisation's safety culture monitoring programmes

4.11 REVIEWING AND IMPROVING THE MANAGEMENT OF CONTRACTORS

Does the organisation review its process of managing its contractors and carry through lessons to improve its processes?



For example:

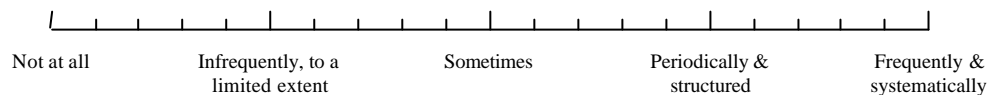
- the influence of contractor selection, on-going management and assessment processes on the safety performance and culture of contractors (and staff) are reviewed and appraised periodically
- the root cause of safety culture and performance difficulties with contractors are sought and debated
- potential improvements to contractor management processes are identified and assessed for their influence on safety performance and culture before implementation
- contractors are encouraged to suggest how the organisation's contractor management processes could be improved in respect of safety performance and culture

5 PROCESSES

The presumption underlying this Processes element is that the company's approach to safety culture should be planned, organised and reviewed in the same systematic and effective way as other elements of safety management. Such planning and review is necessary if there is to be an assurance that the organisation's management of culture will be sustained and improved in the future. Such planning is also important to ensure that appropriate methods are used to identify the "root causes" of cultural problems and the best way of resolving these. Therefore, Processes focuses on how the organisation manages the assessment and improvement of safety culture. Does the organisation have an established procedure to identify, plan and implement processes to support the development of its safety culture? Is there any way of assessing success in achieving safety culture targets?

5.1 IDENTIFYING WHAT IS INFLUENCING THE ORGANISATION'S SAFETY CULTURE

Does the organisation identify the factors influencing the safety attitudes and perceptions of staff and management?



This may involve "formal" methods such as attitude surveys and informal methods such as unprompted communication from staff. "Formal" methods may include:

- structured focus groups sessions, run by internal or external facilitators, on the factors influencing their attitudes, perceptions and behaviours
- safety attitude surveys
- risk perception surveys
- root cause analysis of accidents, violations, unsafe behaviours
- employee suggestion schemes
- anonymous reporting systems.

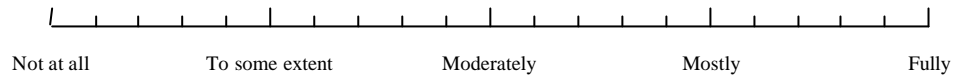
These methods may be used in combination.

Informal methods may include:

- direct ad hoc staff contact with managers/representatives regarding their perception of management/peer expectations and influences on their behaviour
- regular or irregular scheduled meetings between staff and management to discuss staff and management perceptions of management/peer expectations and influences on their behaviour.

5.2 IDENTIFYING METHODS FOR IMPROVING SAFETY CULTURE

Are methods being used to identify means of improving safety culture?



Internal methods may include:

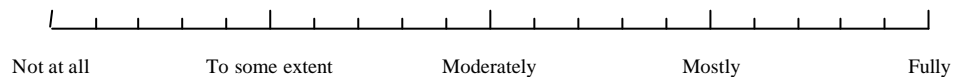
- staff-management discussions on how to improve the safety culture
- application of proprietary safety culture audits and development schemes
- other means for employees to contribute their views about organisational development.

Externally focused methods may include:

- identifying latest research on methods of improving safety culture
- identifying best practice for managing safety culture inside and outside the industry
- sharing information and experiences in the development of safety culture with the operators of other plants.

5.3 TAKING ACCOUNT OF SAFETY CULTURE IN GENERAL MANAGEMENT PROCESSES AND DECISIONS

Do managers take account of how their decisions affect the perceptions that staff and other managers' have of the organisation's commitment to safety?

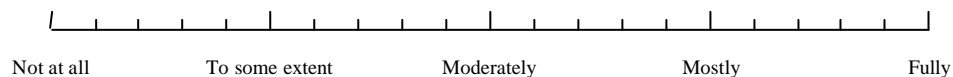


For example:

- are management able to recognise and understand how business decisions may impact the real or perceived commitment to safety?
- are there explicit rules for when to examine the safety implications of business decisions, such as the outsourcing of functions that may impact safety culture?

5.4 OPEN MINDEDNESS

Is the organisation open-minded in its processes, such as in the identification of problems and solutions?

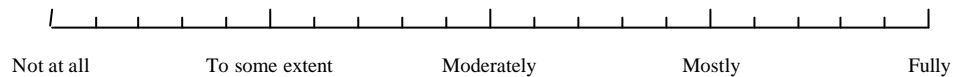


This may include:

- management avoid reacting defensively toward suggestions for changes in how they manage their area of responsibility
- avoiding attributing blame to individuals who exhibit unsafe or undesirable behaviour – without first examining the organisational and social influences on their behaviour
- avoiding organisational barriers to team working, communication and decision making, and “departmental compartmentation” of the identification of problems and solutions
- accepting the principle that there should be a continuous process of improving safety culture, avoiding the belief that the organisation has it ‘all sown up’
- accepting the principle that there may be lessons to be learnt from other organisations, both within and outside of the sector.

5.5 SETTING TARGETS FOR SAFETY CULTURE IMPROVEMENT

Does the organisation translate its safety culture goals into a set of targets that can be monitored?

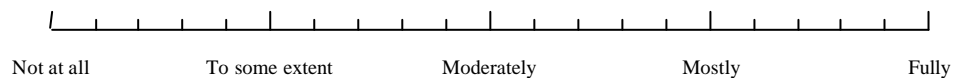


These targets may include observable behaviours, measurable attitudes, contribution of behaviours to incidents, such as:

- ratio of safe to unsafe behaviours
- extent of staff involvement in resolving safety issues
- proportion of hazards that are proactively reported by staff, compared to those that are picked up by safety advisors or the like
- employee rating of safety commitment of the organisation
- percentage of incidents arising from violation of procedures.

5.6 REVIEW OF PROGRESS IN MEETING SAFETY CULTURE TARGETS

Does the organisation assess whether its chosen methods of developing its safety culture are working effectively?



This is likely to entail gauging progress in satisfying targets set under point 5.5. Progress may be monitored using methods such as:

- attitude surveys
- incident investigation
- behavioural audits of staff and management
- focus group meetings
- monitoring the carry through of recommendations.

Examples of the type of indicators that may be monitored can be found under the elements Employee Satisfaction and Behavioural Results.

6 CUSTOMER SATISFACTION

As stated in the overview, an organisation should use external points of reference when assessing the adequacy and success of its approach to safety culture. This is to ensure that the improvement of safety does not stagnate due to self-referencing and self-assessment. Moreover, an effective safety culture should always seek to promote continuous improvement and satisfaction of the standards of safety expected by key stakeholders. The measurement of customer satisfaction should therefore provide a continual impetus to improve, or at least maintain those standards expected of the organisation.

Therefore, this section concerns the extent to which the organisation is succeeding in satisfying the expectations of customers, where 'customers' include regulators and enforcing authorities. This includes tracking customers and regulators satisfaction with the organisation's safety culture and their perception of its behaviour.

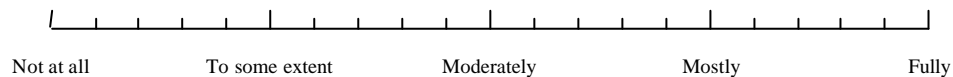
To adequately judge whether customer expectations have been met it would be useful to have first consulted customers, as per point 2.1. "Customers" feedback may be acquired directly through opinions expressed during meetings and other points of contact. Customer (and regulator) perceptions are likely to be based on their view of:

- how the staff and management of an organisation behave:
- the extent to which unsafe or irresponsible behaviour contribute to incidents.

Where a mismatch is found between the customer expectations and the organisation's ideology, the company's approach to the development of policy and strategy should be reviewed. If customers and/or regulators do not trust the company to self-regulate, this may be due to a perceived performance deficit in elements 1, 3 or 4, i.e. the safety culture is thought to be weak due to a lack of a system to plan and maintain the safety culture.

6.1 REGULATORS PERCEPTION OF THE ORGANISATION'S BEHAVIOUR

Do regulators and enforcing agencies regard the organisation to be a safe and responsible operator?

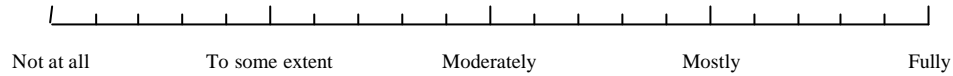


Indicators may include:

- the extent to which regulators trust the organisation to self-regulate day to day safety matters
- the extent to which the regulators believe the organisation has the commitment and competence to implement safety management arrangements
- the frequency with which the regulator requests evidence to demonstrate that safety arrangements have been implemented as envisaged by the organisation. i.e. does the regulator trust the organisation to apply proposed safety arrangements?

6.2 CUSTOMERS PERCEPTION OF THE ORGANISATION'S BEHAVIOUR

Do customers regard the organisation to be a safe and responsible operator?

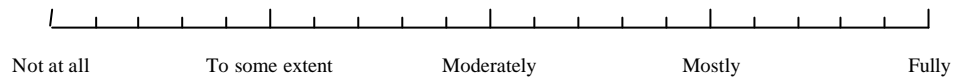


Indicators may include:

- frequency with which customers raise concerns about the organisation's commitment to safety
- frequency with which customers raise doubts about the effectiveness of the organisation's safety management arrangements.

6.3 COMPARISON OF THE ORGANISATION'S STANDARDS WITH REGULATOR AND PUBLIC EXPECTATIONS

Do customers and regulators perceptions of the organisation match those targeted by the organisation?



Indicators may include:

- frequency with which the organisation feels obliged to argue that it has been misrepresented.
- match between the organisations perception of its commitment to safety and the customers/regulators perception of its commitment – probably based on anecdotal evidence of each parties perceptions.

7 EMPLOYEE SATISFACTION

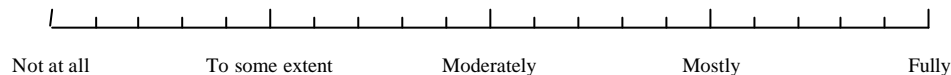
Previous research has repeatedly shown that the “Safety climate” in an organisation has a significant affect on its safety performance. If staff do not trust management or lack a sense of ownership of safety, then safety management arrangements are unlikely to be effectively implemented or compiled with.

Therefore, this section concerns the organisation’s success in developing the required “safety climate” amongst its employees, including staff, supervisors and management.

The assessment of safety climate provides an indication of whether safety management arrangements are likely to be effectively implemented and whether the leadership, people management and resource management initiatives have been effective. The results from this section should be used to inform the review of elements 1, 3 and 4 in particular. The results on employee satisfaction may also be used to identify specific areas for improvement, such as highlighting a need to improve employees’ ownership of safety. “Evidence” on these points, may be acquired from review of the behavioural/attitudinal aspects of incidents, formal attitude surveys, ad-hoc feedback from staff, risk-perception surveys, staff focus groups etc.

7.1 EMPLOYEES’ PERCEPTIONS OF THE LEVEL OF RISK THEY FACE

Do staff and management hold valid perceptions of the risk posed by the hazards in the organisation’s activities?

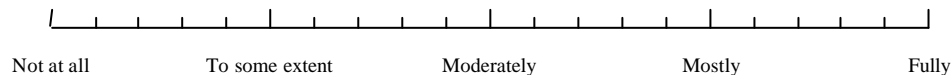


Indicators may include:

- staff perception of whether they work in a safe or unsafe environment
- staff perception of whether the level of risk posed by various hazards justifies the level of effort required to apply designated safety controls
- staff perception of risk posed by each hazard is consistent with the objective levels of risk.

7.2 EMPLOYEES’ CONFIDENCE IN SAFETY CONTROLS AND PROCEDURES

Do employees believe that adherence to designated procedures will assure an appropriate standard of safety?

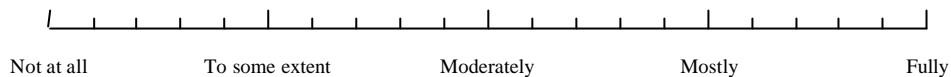


Indicators may include:

- staff perception of whether the job can be done if they stick to the rule book
- staff perception of whether safety rules and procedures are practical and up to date
- staff perception of whether safety rules and procedures cover the main hazards in their area of responsibility
- staff confidence in engineered controls, such as guarding, interlocks, etc.
- staff confidence in key procedures such as incident investigation.

7.3 EMPLOYEES' OWNERSHIP OF SAFETY

Do employees demonstrate personal ownership of safety?

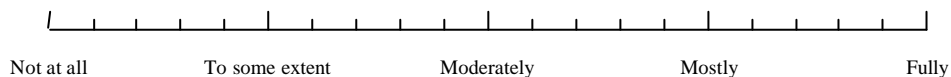


Indicators may include:

- whether they accept the safety controls and procedures as valid and justified
- staff recognition of their individual responsibility for health and safety
- extent to which staff proactively raise safety issues and concerns, and/or offer solutions
- number of hazards reported, without prompting, by staff.
- personal sense of ownership of health and safety and wish to continually seek improvements.

7.4 EMPLOYEE CONFIDENCE IN THE SUPERVISORS & MANAGEMENT

Do employees have confidence in their colleagues and superiors capabilities and commitment to safety?

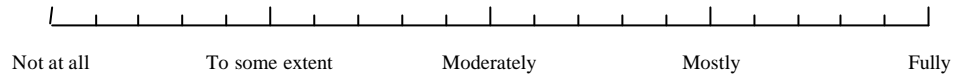


Indicators may include:

- staff perception of the capabilities and commitment of supervisors and/or management to safety
- staff perception of the capabilities and commitment of executive management to safety
- staff perception of their peers capabilities and commitment to safety.

7.5 EMPLOYEES' SATISFACTION ABOUT THE SAFETY PERFORMANCE

Do staff and management believe that the organisation's safety performance is acceptable?

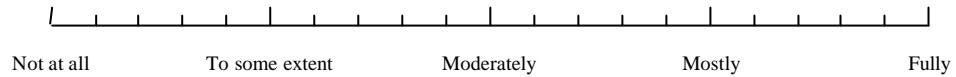


Indicators may include:

- staff rating of the level of safety achieved by the organisation
- staff rating of their feeling of personal safety
- staff rating of whether the organisation has done everything practicable to assure a satisfactory level of safety is achieved.

7.6 COMMON UNDERSTANDING OF NORMS AND EXPECTATIONS

Do employees display a common understanding and acceptance of the organisation's safety norms and expectations?



Indicators may include:

- the extent to which employees rank hazards in the same order as the organisation
- measured consistency of employees and organisation's safety norms and expectations
- measured extent to which employees react as required in specified circumstances, such as when confronted with ambiguous signs of danger.

8 IMPACT ON SOCIETY

This section concerns how society at large perceives the behaviour of the organisation and the extent to which it satisfies society's health and safety expectations. Society's view of an organisation is particularly important in the nuclear sector where there exists immense public interest in the safety of operations. It is imperative to take account of society's satisfaction, or trust, in the organisation when determining whether its safety culture is effective.

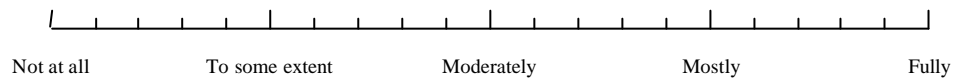
Society's view of the organisation may be deduced from:

- attitude surveys and focus groups, and;
- consideration of anecdotal reports of public reaction to the organisation, such as reaction to planned new plant or incidents on site.

“Society” is defined here to include all persons whose health or safety may be impacted by an incident at the organisation and/or all persons to whom the organisation seeks to maintain an image of trustworthiness. Thus, “society” may include the local population around a site, the general public in a region or country but could also include an international audience.

8.1 SOCIETY'S PERCEPTION OF THE COMPETENCE OF THE ORGANISATION

Does society believe the organisation is capable of achieving high standards of health and safety?

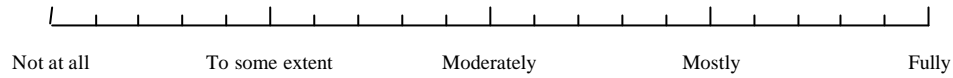


Indicators may include:

- measurement of public trust of the organisation, perhaps using attitude surveys
- public reaction to statements made by the organisation on its safety performance, for example are the statements accepted as truthful
- level of regulation and enforcement demanded by the public for this organisation (compared to comparable organisations).

8.2 RESPONSIVENESS TO SOCIETAL CONCERNS AND EXPECTATIONS

Does society believe the organisation recognises society's concerns and addresses these in its decision making?

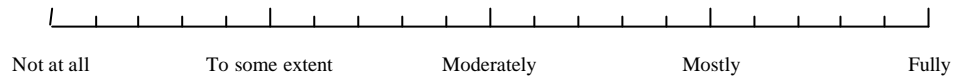


Indicators may include:

- extent to which public believe it is worthwhile entering into dialogue with the organisation
- public expressions of whether the organisation recognises their concerns
- extent to which public demand regulatory intervention to enforce their concerns.

8.3 A CARING AND RESPONSIBLE ORGANISATION

Does society believe the organisation cares about the health and safety of others and is committed to their welfare?



Indicators may include:

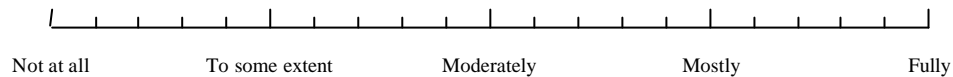
- society's perception of the organisation as a leader or laggard in regard to safety matters
- society's perception of the organisation as being profit or safety centred.

9 BEHAVIOURAL RESULTS

This section looks at the success of the organisation in achieving its own behavioural goals and how the behaviour of the organisation compares with other organisations. These behaviours may include the level of staff compliance with safety rules and procedures, their level of participation in health and safety, the extent to which management provide effective and appropriate safety leadership etc. Behaviours should be assessed against both internal targets and benchmarked against other comparable organisations inside and outside of the sector. As with customer satisfaction, this section aims to ensure that the company's performance is assessed against external reference points.

9.1 INTERNAL MEASUREMENT OF EMPLOYEE BEHAVIOUR

Do the standards of behaviour displayed by the workforce match the safety performance goals of the organisation?

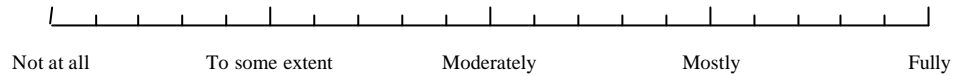


This may be measured using “behavioural” or incident based measures, such as:

- the ratio of safe to unsafe acts/behaviours,
- the extent of active/proactive staff participation in developing or reviewing health and safety arrangements
- the extent to which there is common/shared ownership of safety amongst employees
- the degree to which staff proactively report unsafe conditions, and/or resolve unsafe conditions without prompting by supervisors/management
- the degree to which staff respond appropriately to unsafe conditions/impending emergencies, such as shutting down plant, halting operations, seeking advice and support, raising the alarm, etc.
- the extent to which violations and/or unsafe behaviours contribute to incidents and accidents.

9.2 INTERNAL MEASUREMENT OF MANAGEMENT BEHAVIOUR

Do the standards of behaviour displayed by management match the safety performance goals of the organisation?

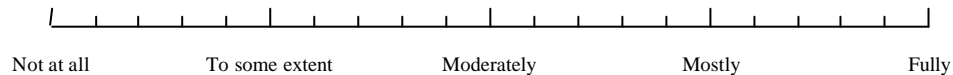


For example:

- extent to which management intervene quickly to resolve unsafe conditions
- tolerance of temporary solutions to unsafe conditions
- responsiveness to queries from sub-ordinates and peers on safety issues
- congruency of management perceptions of risk posed by hazards with objective level of risk
- extent to which focus of management attention is in accord with the risk posed by various hazards and activities
- honesty and consistency in management's interactions with regulators
- frequency with which general management decisions fail to consider health and safety (where potential health and safety impacts existed).

9.3 INTERNAL MEASUREMENT OF CONTRACTORS BEHAVIOUR

Do the standards of behaviour displayed by its contractors workforces match the safety performance goals of the host organisation?

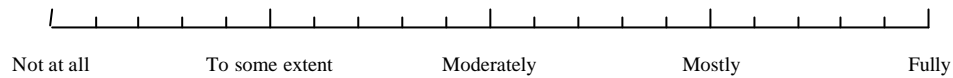


This may be measured using "behavioural" or incident based measures, such as:

- the ratio of safe to unsafe acts/behaviours,
- frequency of active/proactive contractor participation in developing or reviewing health and safety arrangements
- the extent to which there is common/shared ownership of host organisation's safety goals amongst contractors
- frequency with which contractor staff proactively report unsafe conditions, and/or resolve unsafe conditions without prompting by the host organisation
- frequency with which contractor staff respond appropriately to unsafe conditions/impending emergencies, such as shutting down plant, halting operations, seeking advice and support, raising the alarm, etc.
- the extent to which contractor violations and/or unsafe behaviours contribute to incidents and accidents.

9.4 EXTERNAL BENCHMARKING OF EMPLOYEE BEHAVIOUR

Is the standard of behaviour displayed by the workforce consistent with the standard set by industry leaders within and outside of the sector?



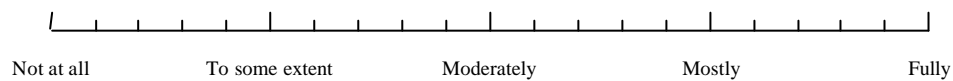
This may cover benchmarking of either the style of safety management and/or the results achieved.

Examples of results that may be benchmarked include:

- the relative extent to which violations and/or unsafe behaviours contribute to incidents and accidents
- the relative extent of employees confidence in the safety controls and arrangements in the organisation
- employees ranking of the relative commitment to safety of competing organisations
- the relative extent of employee participation in health and safety.

9.5 EXTERNAL BENCHMARKING OF MANAGEMENT BEHAVIOUR

Do the standards of behaviour displayed by management match the standards set by industry leaders within and outside the sector?

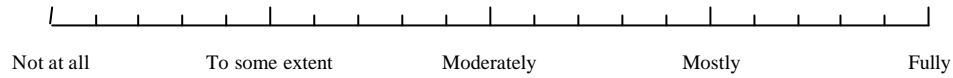


For example:

- the relative extent to which executive management are involved in providing effective leadership in the area of safety
- the extent to which management apply and take account of risk assessment (of health and safety issues) within their general business decision making
- relative extent to which management are involved in health and safety reviews, tours, communications etc.

9.6 EXTERNAL BENCHMARKING OF CONTRACTORS BEHAVIOUR

Do the standards of behaviour displayed by contractors match the standards set by industry leaders within and outside the sector?



For example:

- the relative extent of contracting employees confidence in the safety controls and arrangements in the contracting organisation
- contractor employees ranking of the relative commitment to safety of their organisation with other comparable contracting organisations
- the relative extent of contractor employee participation in health and safety.
- the relative extent to which contractor management are involved in providing effective leadership in the area of safety
- the extent to which contractor management apply and take account of risk assessment (of health and safety issues) within their general business decision making
- relative extent to which contractor management are involved in health and safety reviews, tours, communications etc.

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Appendix A: Progressive safety culture ladder

	Leadership	Policy and strategy	People Management	Resources	Processes
6	Leadership in the organisation is reviewed and continuously improved	Policy is reviewed against changing expectations and continuously improved	The effectiveness of people management process are reviewed and continuously	Contractor and in-house resource management practices are reviewed and continuously	How the organisation monitors and improves safety culture is reviewed and continuously
5	Leadership skills are developed and practised in full, including revision of organisational structure	The organisation monitors for drift in what it defines as 'acceptable' behaviour	Personnel are empowered, competent, working together and rewarded for safe behaviour	There is a comprehensive system of managing contractors, to achieve congruent safety culture	Targets are set for safety culture, performance measured and feedback given
4	Leadership skills are applied to some extent	The organisation successfully translates policy into working practices and behaviour	Personnel are empowered and work together to improve safety	Contractor (and sub-contractor) safety performance and culture is monitored and assessed	The organisation is active in finding ways of improving its safety culture
3	Leadership skills are developed in a structured manner	The organisation succeeds in balancing the demands of all internal & external stakeholders	Personnel are empowered and willing to improve safety	Contractor selection gives due weight to safety performance	The organisation is open-minded about how it can manage and improve its safety culture
2	Leaders demonstrate their commitment to internal and external audiences	Stakeholders views are fed into policy and performance goals	There is a process of raising and maintaining personal competence and confidence	Safety is integrated into a comprehensive system of managing internal resources	The organisations seeks to measure its safety culture and understand what is influencing it
1	Leaders have bought-in to the importance and role of leadership as a contributor to safety	The organisation understand its hazards and risks and takes account of them in setting policy	Personnel have bought-in to the principle of personal accountability, and working practices	Safety is taken account of in decisions about internal resources	The potential impact of management decisions on safety culture is considered
0	Leadership is recognised as having a bearing on safety culture	The organisations accepts a moral and social duty to manage risks	Personnel acknowledge importance of personal accountability	It is recognised that resource management can have a significant bearing on safety	There is acceptance that safety culture can be managed
-1	Little awareness of Leadership as a topic of concern or signs of willingness to learn and improve	The organisation overlooks the role of defining safety goals and norms in influencing safety	There is little sign of ownership of safety amongst staff	Safety has a low priority in the management of internal resources or contractors	Safety culture is considered to be insensitive to management influence

	Customer Satisfaction	Employee Satisfaction	Impact on Society	Behavioural results
6	Customers are satisfied that the organisation fully respects and fulfils their (valid) safety expectations	Employees are satisfied with the organisation's safety performance and commitment to safety	Society believes the organisation fully respects and fulfils their (valid) safety expectations	All behaviour of staff, management and contractors matches best practice
5	Customers are satisfied that the organisation has a responsible attitude to safety	Employees are satisfied with the commitment of the organisation as a whole	Society believes the organisation is caring and responsible	Most behaviours of contractors are comparable to best practice
4	Customers are satisfied that the organisation is competent at managing safety	Employees are satisfied with the abilities and commitment of their supervisors and managers	Society believes the organisation is competent at managing safety	Most behaviours of staff and management are comparable to best practice
3	Customers are satisfied that the organisation is concerned about safety	Employees are satisfied with the safety of working practices	Society believes the organisation is concerned about safety	The behaviour of staff, management and contractors matches the organisation's expectations (internal standard)
2	The organisation has a systematic process of assessing the satisfaction / concerns of customers	Employees are satisfied with safety controls (engineering controls)	The organisation has a systematic process of gauging society's views	Most behaviours of contractors matches the organisation's expectations (internal standard)
1	The organisation logs feedback from customers when received	There is buy-in to and ownership of safety by employees	The organisation notes the opinions of society	Most behaviours of staff and management matches the organisation's expectations (internal standard)
0	The organisation believes customer satisfaction does reflect its own safety culture	Employees have accurate perceptions of the risks and hazards in the organisation	The organisation believes society's views are of value	Some behaviours of staff, management and contractors fit with expectations
-1	Little attention is given to levels of customer or regulator satisfaction with safety performance	Employees are ambivalent to safety	Little attention is given to society's views of the organisation's safety culture	The behaviour of staff, management and contractors falls far short of acceptable standards

