Summary guide to safety climate tools

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Summary guide to
safety climate tools

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Summary

AIMS OF THE GUIDE

The HSE has been involved in a number of projects to develop safety climate/ culture tools. They consider that these tools should be introduced to the wider community of potential users, both in the oil and gas industry and in other industry sectors. The emphasis is on those tools that have been developed in collaboration with the oil and gas industry or that are generic in nature so could be readily applied in this particular industry sector.

This Summary Guide is intended to address three overall objectives:
1. To provide summary information on a number of questionnaire-based tools that have been developed, with the aid of Health & Safety Executive (HSE) funding, to measure the safety climate of organisations. [*Summary & Part 1*]
2. To carry out a detailed comparison of individual questionnaire items. [*Summary & Part 2*]
3. To identify, if possible, which safety climate tools and/or specific questionnaire items appear to be most useful in helping to establish the current state of maturity of an organisation or installation. [*Summary & Part 2*]

TOOLS FOR COMPARISON

The six tools for comparison are detailed below.

- The **Health and Safety Climate Survey Tool [HSCST]** developed by the HSE and released in December 1997.
- The Aberdeen University[1] **Offshore Safety Climate Questionnaire** was developed and further refined under a number of research projects partially funded by HSE's Offshore Safety Division. Three versions are included in the comparison exercise.
  - The Offshore Safety Questionnaire, a modified version of the 1994 Offshore Risk Perception Questionnaire, used in the joint industry project (HSE ref: Project 3366) *'Human and organisational factors in offshore safety'* in 1996 **[OSQv1]**
  - The Offshore Safety Climate Questionnaire used in the joint industry project (HSE ref: Project 3661) *'Factoring the human into safety: translating research into practice'* during 1999 **[OSQ99]**
  - The Computerised Safety Climate Questionnaire, piloted with an oil company in 1997 **[CSCQ]**
- The Loughborough University **Safety Climate Assessment Toolkit** developed and used in the joint industry project (HSE ref: Project 3389) *'The measurement of safety climate in safety cases'* in 1997 **[LSCAT]**
- A **Safety Climate Questionnaire** developed by Quest Evaluations and Databases Ltd for use in a joint industry project (HSE ref: Project 3626*) 'Safety and performance enhancement in drilling operations by human factors intervention (SPEDOHFI)'* in 1998 **[QSCQ]**

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[1] Early development of the Offshore Safety Climate Questionnaire was carried out while the research team was based at Robert Gordon University.

READERSHIP

This Guide should assist those in the oil and gas industry who are interested in measuring and assessing the existing safety climate in their organisations, with the intention of identifying the priority areas for focussing improvement effort. The questionnaire tools described can also be used periodically to assess progress made. The Guide does not provide advice on the range of behavioural modification tools available nor on which may be best suited for use at different stages of organisational maturity. The reader is referred to Section 4 for details of where to find such information, as well as other sources of useful information.

STRUCTURE OF THE GUIDE

Part 1 of the Guide reviews the six safety climate tools. A set of comparison parameters were defined for use in this review, allowing details of each tool to be tabulated (see tables in Section 3). There are a number of factors that need to be considered regardless of which safety climate tool is to be used. These 'key considerations' are described in Section 2, ahead of the review.

In carrying out the review, the authors have borne in mind that many organisations will be interested in identifying tools that:
- are available as a total package (free, or for purchase)
- are ready for immediate utilisation
- can be used without external expert assistance being required

Whereas certain tools have been designed to be used in this manner, others have originated primarily as research tools. Development of the latter type has focused increasingly on meeting the needs expressed by individual organisations aiming to improve their safety climate.

Part 2 of the Guide reviews the specific details of the safety climate assessment survey by examining the individual items used (ie 'questions asked') within the survey. The process by which the detailed item-by-item comparison has been carried out is described. The categorisation employed allows similar items to be gathered into groupings and subgroupings, with appropriate labels. For each grouping, a suggested subset of items for inclusion in a **Core Safety Climate Item Set** are identified. These are the items considered most suited - by the Guide's authors - to investigation of the key aspects of the prevailing safety climate of an offshore installation.

Attention then turns to reviewing the questionnaire items and their potential for aiding identification of the current state of maturity of an organisation or installation, as defined by The Keil Centre's draft Safety Culture Maturity Model (SCMM).

PART 1 - SUMMARY

The findings of the Part 1 review are summarised in Table S1. These are provided as responses to 14 key questions likely to be asked by any potential user of a safety climate survey tool:
(i)   Can the tool be used without recourse to the developers?
(ii)   Is support available if required?
(iii)   What is the quality of guidance material available for users?
(iv)   Is advice given on what to do with the results?

(v)   To what extent has the tool been validated?
(vi)   How extensively has the tool been used?
(vii)   Is there a database of results and norms for results?
(viii)   What costs/resources are required to conduct a survey?
(ix)   How long does it take to complete the questionnaire?
(x)   What is the ease of processing questionnaires and producing results to feedback to participants?
(xi)   What is the usefulness of the output for planning of improvement actions?
(xii)   How well/ easily do outputs map onto elements of the safety culture maturity model?
(xiii)   To what extent can the tool be adapted by the user?[2]
(xiv)   How applicable is the tool to the oil & gas industry?

As well as textual responses an indicative ranking is provided for each tool in response to each of the 14 questions, using the ranking scheme below.

No No   * Fair   ** Good   *** Very Good
N/K Not known (eg relevant information not in public domain at present)

The tools that score best are those that are designed specifically for use by organisations without requiring external assistance. This is not surprising as several of the above questions relate to ease of use using only internal resources. However, ease of performing the survey will often not be the prime consideration. For example, in some cases it may be that specific applicability to the oil & gas industry outweighs other considerations. The potential user would also need to consider the overall quality of each tool as a survey instrument, that is, is the wording of items clear, concise, appropriate and unambiguous. Detailed examination of individual items in Part 2 reveals some cases where it is considered that items would benefit from rephrasing.

PART 2 - SUMMARY

Core Safety Climate Item Set
A core set of safety climate items is shown in Table S2. This is formed from the 11 individual sets of core items identified in Part 2, Section 3. The items are grouped as follows:

Grouping	Title	No. of items
1	Training and competence	8
2	Job security and Job satisfaction	6
3	Pressure for production	7
4	Communications	12
5	Perceptions of personal involvement in health & safety	7
6	Accidents/ incidents/ near misses	11
7	Perception of organisational/ management commitment to health & safety - General	16
8	Perception of organisational/ management commitment to health & safety - Specific	14
9	Merits of the health & safety procedures/ instructions/ rules	14
10	Rule breaking	14
11	Workforce view on state of safety/ culture	13

A small number of items can be found in two groups, eg for items on communications relating to accidents. Where items are repeated, this is indicated. In total there are 114 different items[3].

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[2] Draws on the findings of Part 2, Section 5.

[3] Alternative forms - eg *People are willing to report accidents / People are reluctant to report accidents* - are counted as a single item.

Part 2, Section 4 offers general guidance for any organisation wishing to compile a customised survey questionnaire. Topics covered include: purpose of the intended survey, recommended questionnaire length, and the benefits of using at least one 'free response' item.

Organisational maturity

Items in each of the six Safety Climate questionnaires have been reviewed to establish which, if any, may aid identification of the current state of maturity of an organisation or installation, as defined by the draft Safety Culture Maturity Model (SCMM) in Part 1, Section 1.6.

Although none of the questionnaires were developed with this aim in mind, there are items that could contribute to the identification process. Table S3 lists such items, subdivided into the same groupings as used earlier, with the addition of the 'Safety priorities' grouping. Where there are several similar, but not identical, items in the questionnaires only one example is given here.

The reader is referred to Part 2, Section 5.1 for details of issues that need to be considered if they are intending to investigate organisational maturity.

CONDITIONS ATTACHED TO USE OF QUESTIONNAIRES

Before making use of complete existing questionnaires or individual items selected from the questionnaires, the following permissions must be obtained.

Code	Questionnaire	Developer
A	Health and Safety Climate Survey Tool [HSCST]	Health & Safety Executive
The tool can be purchased from HSE Books for use in its complete form (see Part 1, Section 3.1). Permission to use selected individual items would need to be sought from HSE.		
B	Offshore Safety Questionnaire [OSQv1]	Robert Gordon University/Aberdeen University
The tool is in the public domain. Potential users are requested to advise the developers of their intentions to use the tool (see Part 1, Section 3.2).		
C	Offshore Safety Climate Questionnaire [OSQ99]	Aberdeen University
Use of the tool requires permission from Aberdeen University and there are further conditions attached to its use (see Part 1, Section 3.3). Permission to make use of selected individual items would also need to be sought from Aberdeen University.		
D	Computerised Safety Climate Questionnaire [CSCQ]	Robert Gordon University
All offshore oil & gas companies are allowed free access to the questionnaire and associated analysis software (see Part 1, Section 3.4).		
E	Loughborough Safety Climate Assessment Toolkit [LSCAT]	Loughborough University
The tool is in the public domain and available for use free of charge. See Part 1, Section 3.5 for details of access. Permission to use selected individual items would need to be sought from Loughborough University.		
F	Quest Safety Climate Questionnaire [QSCQ]	Quest Evaluations and Databases Ltd
The developers retain copyright of the Safety Climate Questionnaire. Any company or individual wishing to make use of the complete questionnaire or selected individual items should contact Quest Evaluations and Databases Ltd (see Part 1, Section 3.6).		

Table S1: Summary Details of the Safety Climate Survey Tools

	Safety climate survey tools					
	HSCST	**OSQv1**	**OSQ99**	**CSCQ**	**LSCAT**	**QSCQ**
Title	Health and Safety Climate Survey Tool	Offshore Safety Questionnaire	Offshore Safety Climate Questionnaire	Computerised Safety Climate Questionnaire	Safety Climate Assessment Toolkit	Safety Climate Questionnaire
Developer	Health & Safety Executive	Aberdeen University[4]	Aberdeen University	Robert Gordon University[5]	Loughborough University	Quest Evaluations and Databases Ltd
(i) Can the tool be used without recourse to the developers?	Yes. ***	Yes, subject to competent persons distributing the questionnaire, analysing & interpreting the data. Considerable statistical expertise required. **	No, requires Aberdeen University's permission. Also, only available with involvement of Aberdeen University Research and Industrial Services (AURIS) consultancy consortium & original developers. **No**	Yes, designed to be used without needing to seek external assistance. ***	Yes, designed to be used without expert external assistance, although some companies may need initial support. **	Developer retains copyright & initial access to tool is conditional on use of the developer's services. Users subsequently given full access to tool, with developers continuing to offer support as required. *
(ii) Is support available if required?	Yes, user helpline & confidential benchmarking service. **	Yes, developer can offer all forms of support necessary for use of the tool. ***	Yes, all necessary support is available via AURIS. This is a pre-condition of use. ***	No current facility for providing ongoing support to users. **No**	Yes, services available from developer include providing mean scores on each dimension based on database held (free service), safety climate profiles & benchmarking. ***	Yes, developer can offer all forms of support necessary for use of the tool. This is a pre-condition of initial use. ***

Key: **No** No   * Fair   ** Good   *** Very Good   **N/K** Not known

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[4] Early development of the Offshore Safety Climate Questionnaire was carried out while the research team was based at Robert Gordon University.

[5] Development carried out by Mark Fleming, now at The Keil Centre, Edinburgh.

(iii) Quality of guidance material available for users?	Excellent. Easy to read & understand. Useful advice on entire safety climate improvement process. ***	Public domain material is in the form of research reports & papers describing past use. Not designed as guidance for potential users. *	No material available in the public domain at time of preparing the Guide[6]. AURIS would use the tool on behalf of the customer. **N/K**	User information provides very brief, but helpful advice in easy-to-understand language. **	Comprehensive user guide in Q&A format. Best suited to those with some background in the area. Research report from related JIP (*Assessing safety culture in offshore environments*) also available. **	Relevant material remains confidential to participants in related JIP at present. Developer would use the tool on behalf of any new customer initially. **N/K**
(iv) Is advice given on what to do with the results?	Brief but useful advice on range of uses & benefits of the tool. Also key considerations in follow-up (communicating results, taking things forward, identifying issues & implementing improvement plans. **	Advice offered is specific to the studies the questionnaire has been used in. *	To date, advice given is specific to the current JIP (*Factoring the human into safety: translating research into practice*) and its participants. Assume provision of advice is integral part of AURIS service in any future use. ***	Limited indication of what follow-up actions might be taken. *	Advice is given on the feedback & climate improvement processes, including brief details on developing action plans & a safety climate maintenance checklist. **	To date, advice given is specific to the related JIP (*Safety & performance enhancement in drilling operations by human factors intervention (SPEDOHFI)*) and its participants. Assume provision of advice is integral part of developer's service in any initial future use with new customers. ***
(v) Validation of tool?	Extensive validation across range of industry sectors. Completed by 10,000 people across 40 sites during development. ***	The OSQv1 developed from an earlier tool (used in a joint industry project [JIP] on risk perception & safety offshore). OSQv1 development included rigorous piloting. **	The OSQ99 was developed in Ph2 of the above JIP, building on experience of the Ph1 version (704 responses) and the earlier OSQv1. **	The CSCQ was developed from the OSQv1, taking a subset of items considered to be best predictors of state of safety. Used by an oil co. on drilling rigs during development (results confidential). **	Lengthy development process, within above JIP & in earlier work carried out by industry sponsors. JIP included piloting, revision & follow-up use of questionnaire. **	The QSCQ was developed in above JIP. Piloted on 14 personnel attending drilling school. Construct validity confirmed via development methods used, while use with offshore personnel has provided content validation. Questionnaire also checked for comprehensiveness. *

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[6] Final reports from Joint Industry Project (JIP) to be published in Autumn 2000 (see Table 3.3, Section 12 for details).

(vi) Extent to which the tool has been used?	Purchased by ~400 organisations (to Dec 1999). Users come from wide range of employment sectors, within & outside UK. ***	Used in JIP (*Human & organisational factors in offshore safety*) - 722 responses. Customised versions used by Woodside Petroleum & Phillips China. Also used in consultancy work. **	To date, the OSQ99 has only been used in the above JIP (679 responses). Developer intends to use OSQ99 (or abridged version) more widely in future. *	Above oil co. use not continued following project completion. Tool distributed to organisations that expressed interest. Not thought to have received widespread use. *	Used in JIP. Also, ~10 requests for toolkit & 2 cos. wanting limited support from developer, to provide comparative results (Jan. 2000). **	To date, used solely in offshore O&G industry. Involved 5 O&G cos. in UK sector JIP (93 responses). Used with 3 cos. in USA. Experience built up over 2-3 years. **
(vii) Is there a database of results and norms for results?	Yes, but not available for external use. Underlies a confidential benchmarking service available to all users. ***	Full OSQv1 no longer used by developer - more usual for parts to be used. Not setting up a norm database for the OSQv1. **No**	There is an intention to build up a norm database. **	No, although tool provides N Sea average scores for each of 5 factors, drawn from data collected during development and use of the OSQv1. *	Yes, but not available for external use. Database contains ~600 cases, from 5 cos. that have used toolkit (Jan. 2000). Underlies full profiling service offered by developer. ***	Yes, a norm database of 93 records is held by the developer, with baseline results being available for comparison purposes. **
(viii) What costs/ resources are required to conduct a survey?	Low purchase cost - £200 for single site up to 100 employees. Other costs - questionnaire preparation, completion, data input & analysis, report production, communicating results, identifying issues & implementing improvement plans, repeating survey to check on progress. ***	No purchase costs attached to use of questionnaire. Other costs - questionnaire preparation, customisation, completion, data input & analysis, report production, communicating results, identifying issues & implementing improvement plans, repeating survey to check on progress. Considered likely that use will require assistance from developer or other external consultants. Ranking assumes that associated costs will be incurred. *	The OSQ99 and future versions of the questionnaire will be made available for use outside the current JIP. This will be with costs & conditions attached, including the tool only being available with involvement of AURIS consultancy consortium & original developers. Details of costs not known but ranking assumes they will be more than if using in-house resources only. *	Available free to offshore O&G companies only. Other costs - questionnaire preparation, completion, data input & analysis, report production, communicating results, identifying issues & implementing improvement plans, repeating survey to check on progress. ***	Available free from the developer, by post or via their Internet site. Other costs - questionnaire preparation, completion, data input & analysis, report production, communicating results, identifying issues & implementing improvement plans, repeating survey to check on progress. May need to allow for costs of some external expert assistance on first use of toolkit. **	The QSCQ is available to new users but with costs & conditions attached. Initial access to the tool is conditional on use of the developer's services. Details of costs not known but ranking assumes they will be more than if using in-house resources only. *

(ix) Time required to complete questionnaire?	15-20 minutes (est.) ***	45 minutes (est.) *	20 minutes (est.) ***	20-30 minutes (est.) **	15-20 minutes (est.) ***	45-60 minutes (est.) *
(x) Ease of processing questionnaires and producing results to feedback to participants?	Good. Computer-based analysis package presents results in various graphical formats that are easy to understand. Example results provided with advice on interpretation. ***	Requires familiarity with SPSS statistical package. Material in public domain is aimed at O&G management. Unsuitable for feedback to workforce. *	No information available in the public domain at time of preparing Guide[6]. The AURIS consortium/ developers would undertake all this work. N/K	Software package allows range of straightforward analyses & displays results in graphical form. This could be reported back to management & workforce participants in readily understood form. **	Good. Full processing instructions and graphical means of displaying results are detailed. Terminology more suited to feedback to management than to workforce. **	At present, no information available in the public domain. JIP research report is aimed at O&G management. Unsuitable for feedback to workforce. The developer would undertake this work for initial use of the tool with new customers. Future in-house analysis/ reporting would require familiarity with SPSS or equivalent statistical package. N/K
(xi) Usefulness of output for planning of improvement actions?	Good. Sound advice given on identifying issues & implementing improvement plans. However, little indication of what might be practical improvement actions. Would benefit from case study examples. **	Can be difficulties making the link between results of analyses & identification of practical improvement actions. Would benefit from case study examples. *	No relevant information in the public domain at time of preparing Guide[6]. N/K	User information aids interpretation of results & identifies overall problem areas. However, it does not help determine practical improvement actions. Would benefit from case study examples. *	Questionnaire is one element of a 'multiple approach' toolkit. Results - coupled with guidance in user guide, toolkit & JIP research report - gives sound support to development of action plans, providing feedback & follow-up. However, limited indication of what might be practical improvement actions. Would benefit from case study examples. *	JIP research report not yet in the public domain. But the developer advises that much value comes from detailed examination of the questionnaire items. Also, that the tool indicates where there are problem areas, from which improvement actions can be drawn. The Guide's authors believe that practical improvement actions outlined are specific to the JIP & to those involved in drilling activities. The QSCQ's usefulness does not depend upon integrated use with other human factors tools. *

(xii) How well/ easily do outputs map onto elements of the safety culture maturity model?	The Guide's authors consider that 35 of the 72 'main' items may aid identification of the current state of maturity of an organisation or installation, as defined by the draft Safety Culture Maturity Model. Where this is an important issue, it is suggested that inclusion of a limited set of items - specifically designed to investigate organisational maturity - might be of benefit. *	The Guide's authors consider that 25 of the 153 'main' items may aid identification of the current state of maturity of an organisation or installation, as defined by the draft Safety Culture Maturity Model. Where this is an important issue, it is suggested that inclusion of a limited set of items - specifically designed to investigate organisational maturity - might be of benefit. *	The Guide's authors consider that 27 of the 80 'main' items may aid identification of the current state of maturity of an organisation or installation, as defined by the draft Safety Culture Maturity Model. Where this is an important issue, it is suggested that inclusion of a limited set of items - specifically designed to investigate organisational maturity - might be of benefit. *	The Guide's authors consider that 16 of the 49 'main' items may aid identification of the current state of maturity of an organisation or installation, as defined by the draft Safety Culture Maturity Model. Where this is an important issue, it is suggested that inclusion of a limited set of items - specifically designed to investigate organisational maturity - might be of benefit. *	The Guide's authors consider that 25 of the 44 'main' items may aid identification of the current state of maturity of an organisation or installation, as defined by the draft Safety Culture Maturity Model. Where this is an important issue, it is suggested that inclusion of a limited set of items - specifically designed to investigate organisational maturity - might be of benefit. *	The Guide's authors consider that 34 of the 319 'main' items may aid identification of the current state of maturity of an organisation or installation, as defined by the draft Safety Culture Maturity Model. Where this is an important issue, it is suggested that inclusion of a limited set of items - specifically designed to investigate organisational maturity - might be of benefit. *
(xiii) Adaptability of tool by user?	Can customise title & instructions. Also, add demographic questions to suit own organisation. Unable to modify 'core' questions. **	Has been customised to fit needs of specific projects/ users. Likely to require assistance from developers or other consultants. *	Can be customised by AURIS consortium/ developers. No adaptation allowed without their involvement. *	Minor customisation is feasible. Major changes would affect the applicability of the user information provided. *	Not intended to be customised. Tool includes short form questionnaire for use if limited time or need interim assessment on sample of workforce. *	Full questionnaire is long, with 12 sections. Surveys can use fewer sections, focusing on topics such as 'management' & 'training'. Some wording needs to be adapted for non-drilling use. For initial use, customisation must be done by the developer. **
(xiv) Applicability to the O&G industry?	Generic questionnaire designed for use in any industry. **	Developed specifically for offshore O&G industry. Used more widely in energy industry. ***	Developed for use in the offshore O&G industry. Could be readily adapted for use in other sectors. ***	Developed for use in the offshore O&G industry, with some wording tailored to drilling use. Could be easily adjusted for wider applicability offshore. ***	Developed for use in the offshore O&G industry. Could be applied in other sectors, subject to industry-specific modification. ***	Developed specifically for drilling-related use in the offshore O&G industry. Potentially could be developed further to allow use across O&G industry & wider application in other safety critical industries. **

Table S2: Core Safety Climate Item Set

1: Key items relating to *Training and competence*

Code	Text	Scoring[7]
1.1	I am clear about what my responsibilities are for health and safety. A31 E37	A
1.2	I fully understand the health and safety risks associated with the work for which I am responsible. A17	A
1.3	I fully understand the health and safety procedures/instructions/rules associated with my job. A66	A
1.4	Sometimes I am uncertain what to do to ensure health and safety in the work for which I am responsible. A46	A
1.5	The training I had covered all the health and safety risks associated with the work for which I am responsible. A40	A
1.6	Training has given me a clear understanding of all those aspects of my job which are critical to safety. F59	A
1.7	People here are consulted to establish their training needs. F52 [adapted]	A
1.8	How satisfied do you feel with regard to competence of (*named key roles/tasks*) B96/C35 [adapted]	B

2: Key items relating to *Job security and job satisfaction*

Code	Text	Scoring
2.1	My job security is good. B110 I am worried about my job security. A54 I am confident about my future with the company. F142 [adapted]	A
2.2	Senior management don't care about the negative effect that job uncertainty has on safety. B163 Management cares about the negative effect that job uncertainty has on safety. C57	A
2.3	My job is boring and repetitive. A6	A
2.4	The workforce generally feel challenged and motivated by their work tasks. F243 [adapted]	A
2.5	Motivation among the workforce is high. F119 [adapted]	A
2.6	The workforce have a high level of job satisfaction. F124 [adapted]	A

3: Key items relating to *Pressure for production*

Code	Text	Scoring
3.1	There is sometimes pressure to put production before safety on this installation. B126 D39 There is never any pressure to put production before safety on this installation/rig. C40	A
3.2	Sometimes it is necessary to ignore safety regulations to keep production going. B136 C37 D27 (also in Grouping 10) Safety rules are adhered to even under production pressure. F12	A
3.3	There is constant pressure to keep working. B13 You can take it easy and still get your work done. B25	A
3.4	Low manning levels sometimes result in rules being broken to get the job done. C38 (also in Grouping 10) There are always enough people available to get the job done safely. E40	A

Scoring:

A - 5 point scale from 1 Strongly disagree through to 5 Strongly agree.

B - 5 point scale from 1 Very dissatisfied to 5 Very satisfied.

C - 5 point scale from 1 Not involved at all to 5 Fully involved.

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[7] Scoring system used in source questionnaires.

3.5	Nowadays, managers are more interested in safety than production. B111	A
3.6	The company would stop us working due to safety concerns, even if it meant losing money. C59 (also in Grouping 7)	A
3.7	A consistent message that production pressures must not compromise safety is communicated by management to the workforce. F11 [adapted]	A
4: Key items relating to *Communications*		
4.1	I am satisfied with the way I am kept informed about what takes place on this installation. B31 C11	A
4.2	There is good communication here about safety issues which affect me. E13 There is poor communication about safety issues that may affect me. C18	A
4.3	I am always informed about the outcome of meetings which address health and safety. A21	A
4.4	My line manager/supervisor does not always inform me of current concerns and issues. E31	A
4.5	Safety information is always brought to my attention by my line manager/supervisor. E34 (also in Grouping 8)	A
4.6	There is poor communication between operator and contractor staff. C12 How satisfied/ dissatisfied are you with communication between operator and contractor staff? C89	A B
4.7	There is good communication between (*employee group*) and (*employee group*) staff. B32 [adapted]	A
4.8	How satisfied/dissatisfied are you with communication between the installation/rig and the beach? C90	B
4.9	There is good communication at shift handover. C17 How satisfied/ dissatisfied are you with communication at shift handover? C83	A B
4.10	There is good communication between crew changes. B34 There is poor communication between crew changes. C15	A
4.11	The crew is always given feedback on accidents/incidents that occur on this installation. B131 D56 (also in Grouping 6) [adapted]	A
4.12	Information on recurring causes of accidents/incidents is effectively disseminated to all appropriate personnel. F258 (also in Grouping 6) [adapted]	A
5: Key items relating to *Perceptions of personal involvement in health and safety*		
5.1	I am involved in informing management of important safety issues. E11	A
5.2	I can influence health and safety performance here. E32	A
5.3	I feel involved when health and safety procedures / instructions / rules are developed or reviewed. A16	A
5.4	Indicate the extent to which you are satisfied/dissatisfied with workforce involvement in safety on your installation/rig. C76	B
5.5	When decisions are being made about safety issues which may affect you, how involved do you feel? C20	C
5.6	I have a fair opportunity of influencing the decisions to be made by my superiors. B36	A
5.7	In planning and decision making about your work activities, how involved do you feel? C19	C
6: Key items relating to *Accidents/ incidents/ near misses*		
6.1	Members of investigation teams are trained to identify true root causes rather than blame human error. F264	A
6.2	The investigation system considers management and policy influences on the causes of incidents. F265	A
6.3	People who cause accidents here are not held sufficiently accountable for their actions. A39	A
6.4	People are willing to report accidents. C46 (also in Grouping 11) People are reluctant to report accidents. B121 D33 (also in Grouping 11	A
6.5	People are willing to report near misses. C41 (also in Grouping 11) People are reluctant to report near misses. B141 D34 (also in Grouping 11)	A
6.6	Accident investigations are mainly used to identify who is to blame. A11	A
6.7	Accident investigation prevents accidents recurring. B102	A

6.8	Information on recurring causes of incidents are effectively disseminated to all appropriate personnel. F258 (also in Grouping 4)	A
6.9	The crew is always given feedback on incidents that occur on this installation. B131 D56 (also in Grouping 4)	A
6.10	How satisfied do you feel with regard to follow-up and measures taken after injuries and accidents have taken place? B79 C24	B
6.11	Management acts only after accidents have occurred. E22	A

7: Key items relating to *Perception of organisational/management commitment to health & safety - General*

7.1	The company really cares about the health and safety of the people who work here. A45	A
7.2	The company would stop us working due to safety concerns, even if it meant losing money. C59 (also in Grouping 3)	A
7.3	(I feel that the) management (on this installation) are concerned about my general welfare. B148 D47	A
7.4	Management place a low priority on health and safety training. A53	A
7.5	Management acts decisively when a safety concern is raised. E12 Corrective action is always taken when management is told about unsafe practices. E29 Management listens to safety concerns, but nothing ever gets done. B115 D54	A
7.6	The time it takes before safety improvements are implemented is too long. B105 D61 Safety improvements are implemented within a reasonable period of time. C52	A
7.7	Employees are not encouraged to raise safety concerns. E25	A
7.8	I am strongly encouraged to report unsafe conditions. E18	A
7.9	The company encourages suggestions on how to improve health and safety. A33	A
7.10	Indicate the extent to which you are satisfied/dissatisfied with praise and rewards for working safely. C84	B
7.11	Personnel are actively encouraged to participate in initiatives which can improve safety. F15	A
7.12	Sufficient resources are available for health and safety here. A56	A
7.13	I cannot always get the equipment I need to do the job safely. E46 People can always get the equipment which is needed to work to the health and safety procedures/ instructions/ rules. A43	A
7.14	Management sometimes turn a blind eye to health and safety procedures/instructions/rules being broken. A19	A
7.15	Management trust the (*employees?/workforce?/job group?*) in this organisation. F137 [adapted] The (*employees?/workforce?/job group?*) trust the management in this organisation. F136 [adapted]	A
7.16	The company looks after its (*employees?/workforce?/job group?*). F141 [adapted]	A

8: Key items relating to *Perception of organisational/management commitment to health & safety - Specific*

8.1	My OIM is genuinely concerned about the health and safety of people on this installation/rig. C53	A
8.2	The OIM is always on the lookout for safety rule violations. B134 D57 My OIM turns a blind eye when the rules are bent. C58	A
8.3	I trust my OIM. C44	A
8.4	Safety information is always brought to my attention by my line manager/supervisor. E34 (also in Grouping 4)	A
8.5	I don't think my immediate boss does enough to ensure health and safety. A68 Supervisors devote sufficient effort to health and safety here. A67	A
8.6	Managers and supervisors express concern if safety procedures are not adhered to. E45	A
8.7	My supervisor sometimes turns a blind eye when safety rules are broken. B145 D29	A
8.8	I trust my supervisor(s). B104 C47 D43	A
8.9	(My) management onshore are genuinely concerned about workers' safety. B124 B157 D46	A
8.10	The (*Safety manager/Rig manager/Other role*) only appears when there is a problem. B128 D51 [adapted]	A

8.11	Safety reps do a pretty good job. B138 D53	A
8.12	How satisfied/dissatisfied are you with the support safety reps get to do their job properly? C85	B
8.13	How satisfied do you feel with regard to the (*Safety officer/Other role*)? B94 [adapted]	B
8.14	The health and safety committee makes an important contribution to health and safety here. A48	A

9: Key items relating to *Merits of the health and safety procedures/ instructions/ rules*

9.1	Some health and safety procedures/instructions/rules do not need to be followed to get the job done safely. A3	A
9.2	There are too many health and safety procedures/instructions/rules given the real risks associated with the jobs for which I am responsible. A52	A
9.3	Some health and safety procedures/instructions/rules do not reflect how the job is now done. A27 Procedures reflect working practice. F149	A
9.4	Some health and safety procedures/instructions/rules are not really practical. A14 Safety rules are practical to apply in all situations. F17	A
9.5	(The) rules do not always describe the safest way of working. B108 D49 The rules always describe the safest way of working. C48	A
9.6	The written safety rules and instructions are easy for people to understand and implement. C43	A
9.7	Some health and safety procedures/instructions/rules are only there to protect management's back. A38	A
9.8	(The) written safety rules and instructions are too complicated (for people) to follow. B98 D50 Procedures are written in clear unambiguous language appropriate to the needs of the user. F151	A
9.9	How satisfied do you feel with regard to the Permit to Work system? B92 C32	B
9.10	The Permit to Work System ensures safe working. B127	A
9.11	The requirements of the permit system are complied with in practice. F8	A
9.12	The PTW system is just a way of covering people's backs. B130 D40	A
9.13	Permit forms and procedures are clear, unambiguous and easy to use. F6	A
9.14	The permit-to-work system is 'over the top' given the real risks of some of the jobs it is used for. A29	A

10: Key items relating to *Rule breaking*

10.1	I ignore safety regulations to get the job done. B38 C61 D14	A
10.2	I bend the rules to achieve a target. B42 C65 D18	A
10.3	Conditions at the workplace stop me working to the rules. B44 C67 D20	A
10.4	I take shortcuts which involve little or no risk. B46 C69 D22	A
10.5	I break rules due to management pressure. B47 C70 D23	A
10.6	I am under pressure from my workmates to break rules. B48 C71 D24	A
10.7	Incentives encourage me to break rules. B45 C68 D21	A
10.8	I get financial rewards for breaking the rules. B49 D25	A
10.9	I can get the job done quicker by ignoring some rules. B137 D28	A
10.10	Not all health and safety procedures/instructions/rules are strictly followed here. A42	A
10.11	People here are sometimes pressured to work unsafely by their colleagues. A55	A
10.12	My workmates would react strongly against people who break health and safety procedures/ instructions/ rules. A70	A
10.13	Sometimes it is necessary to ignore safety regulations to keep production going. B136 C37 D27 (also in Grouping 3) Safety rules are adhered to even under production pressure. F12 (also in Grouping 3)	A
10.14	Low manning levels sometimes result in rules being broken to get the job done. C38 (also in Grouping 3)	A

11: Key items relating to *Workforce view on state of safety/ culture*		
11.1	Safety is taken seriously on this installation, it is not just a cosmetic exercise. B122 D58	A
11.2	People here think health and safety isn't their problem - it's up to management and others. A30	A
11.3	I can trust most people who I work with to work safely. A50	A
11.4	People on this installation refuse to do work if they feel the task is unsafe. B143 D60	A
11.5	The standard of safety is very high at my place of work. B103 D62	A
11.6	Sometimes physical conditions at the workplace restrict people's ability to work safely. A49	A
11.7	It is important to me that there is a continuing emphasis on safety. E15	A
11.8	Whenever I see safety regulations being broken I point it out on the spot. B125 C39 D32 When people ignore safety procedures here, I feel it is none of my business. E35	A
11.9	I am rarely worried about being injured on the job. E21 I am sure it is only a matter of time before I am involved in an accident. E9 In my workplace the chances of being involved in an accident are quite large. E27	A
11.10	This installation has a 'no-blame culture'. B132 D48	A
11.11	People are willing to report accidents. C46 (also in Grouping 6) People are reluctant to report accidents. B121 D33 (also in Grouping 6)	A
11.12	People are willing to report near misses. C41 (also in Grouping 6) People are reluctant to report near misses. B141 D34 (also in Grouping 6)	A
11.13	Mistakes are corrected without punishment and treated as a learning opportunity. F133	A

Table S3: Items that may assist in identifying organisational maturity

Training

1	Training has given me a clear understanding of all those aspects of my job which are critical to safety.	F59 [adapted]
2	The training I had covered all the health and safety risks associated with the work for which I am responsible.	A40
3	Training is updated to reflect findings of incident investigations.	F71
4	Personnel are given communication skills training.	F84
5	Management place a low priority on health and safety training. (*also in 'Perception of organisational/management commitment to H&S - general'*)	A53

According to the SCMM, 'Training' is one of ten elements that make up the safety culture maturity of an organisation. Item (3) is identified with 'Learning organisations', while item (4) emphasises the importance attributed to 'Communication', these being two other elements.

Job security & job satisfaction

1	Management cares about the negative effect that job uncertainty has on safety.	C57
2	The workforce generally feel challenged and motivated by their work tasks.	F243 [adapted]
3	The workforce have a high level of job satisfaction.	F124 [adapted]

'Industrial relations and job satisfaction' is one of the ten elements. The greater the perceived job security and job satisfaction, the more mature the safety culture of an organisation is likely to be.

Pressure for production

1	There is sometimes pressure to put production before safety on this installation.	B126/D39
2	Sometimes it is necessary to ignore safety regulations to keep production going. (*also in 'Rule breaking'*)	B136/C37/D27
3	There are always enough people available to get the job done safely.	E40
4	Nowadays, managers are more interested in safety than production.	B111
5	The company would stop us working due to safety concerns, even if it meant losing money. (*also in 'Perception of organisational/management commitment to H&S - general'*)	C59

'Productivity versus safety' is one of the ten elements. The less conflict perceived between production and safety, the more mature the safety culture of an organisation is likely to be.

Communications

1	I am satisfied with the way I am kept informed about what takes place on this installation.	B31/C11
2	There is good communication here about safety issues which affect me.	E13
3	The crew is always given feedback on incidents that occur on this installation. (*also in 'Accidents/incidents/near misses'*)	B131/D56

'Communication' is one of the ten elements. The greater the satisfaction with communication (and in particular, safety-related communication), the more mature the safety culture of an organisation is likely to be.

Perceptions about personal involvement in H&S

1	I can influence health and safety performance here.	E32
2	I feel involved when health and safety procedures/instructions/rules are developed or reviewed.	A16
3	When decisions are being made about safety issues which may affect you, how involved do you feel?	C20
4	In planning and decision making about your work activities, how involved do you feel?	C19

'Participation' is one of the ten elements. The greater the perception of involvement in planning and decision making processes, the more mature the safety culture of an organisation is likely to be.

Accidents/incidents/near misses

1	When incidents occur, factors outside the control of the individuals involved (eg training, procedures, communications, job) are taken fully into account.	F263
2	Members of investigation teams are trained to identify true root causes rather than blame human error.	F264
3	The investigation system considers management and policy influences on the causes of incidents.	F265
4	People are willing to report accidents.	C46
5	People are willing to report near misses.	C41
6	The crew is always given feedback on incidents that occur on this installation. (*also in 'Communications'*)	B131/D56
7	Management acts only after accidents have occurred.	E22
8	Some people are accident prone. (**under 'Various' grouping*)	B147

Management and workforce perceptions of accident causation and actions taken to prevent accidents are one aspect that aids definition of the five levels of the SCMM.

Perception of organisational/management commitment to H&S - general

1	The company really cares about the health and safety of the people who work here.	A45
2	The company would stop us working due to safety concerns, even if it meant losing money. (*also in 'Pressure for production'*)	C59
3	Management place a low priority on health and safety training. (*also in 'Training and competence'*)	A53
4	Management acts decisively when a safety concern is raised.	E12
5	The company encourages suggestions on how to improve health and safety.	A33
6	There is a suggestion scheme with rewards for safety issues.	F221
7	I get praised for working safely.	C14
8	I cannot always get the equipment I need to do the job safely.	E46
9	Management trust the (*employees/workforce/job group*) in this organisation.	F137 [adapted]
10	The (*employees/workforce/job group*) trust the management in this organisation.	F136 [adapted]

'Management commitment and visibility', 'Safety resources', 'Participation' and 'Trust' are four of the SCMM elements. Each is reflected in one or more of the above items. The more positive the more response, the more mature the safety culture of an organisation is likely to be.

Perception of organisational/management commitment to H&S - specific

1	My OIM is genuinely concerned about the health and safety of people on this installation/rig.	C53
2	I trust my OIM.	C44
3	Supervisors devote sufficient effort to health and safety here.	A67

'Management commitment and visibility' and 'Trust' are two of the SCMM elements, each is reflected in one or more of the above items. The more positive the more response, the more mature the safety culture of an organisation is likely to be.

Merits of the H&S procedures/instructions/rules

1	Some health and safety procedures/instructions/rules do not need to be followed to get the job done safely.	A3
2	There are too many health and safety procedures/instructions/rules given the real risks associated with the jobs for which I am responsible.	A52
3	Some health and safety procedures/instructions/rules do not reflect how the job is now done.	A27
4	Some health and safety procedures/instructions/rules are not really practical.	A14

5	The rules always describe the safest way of working.	C48
6	The written safety rules and instructions are easy for people to understand and implement.	C43

The above items help identify whether the workforce's 'perceptions about safety' (as revealed in their questionnaire responses) are shared by the management. 'Shared perceptions about safety' is one of the SCMM elements.

Rule breaking

1	Management would expect me to break health and safety procedures/instructions/rules to get the job done.	A41
2	People here are sometimes pressured to work unsafely by their colleagues.	A55
3	My workmates would react strongly against people who break health and safety procedures/ instructions/rules.	A70
4	Sometimes it is necessary to ignore safety regulations to keep production going. (*also in 'Pressure for production'*)	B136/C37/D27

The above items help identify whether the workforce's 'perceptions about safety' (as revealed in their questionnaire responses) are shared by the management. 'Shared perceptions about safety' is one of the SCMM elements.

Workforce view on state of safety/culture

1	People here think health and safety isn't their problem - it's up to management and others.	A30
2	People here always work safely even when they are not being supervised.	A25
3	I trust my workmates with my health and safety.	A73
4	People here always wear their health and safety protective equipment when they are supposed to.	A36
5	People on this installation refuse to do work if they feel the task is unsafe.	B143/D60
6	It is important to me that there is a continuing emphasis on safety.	E15
7	When people ignore safety procedures here, I feel it is none of my business.	E35
8	In my workplace the chances of being involved in an accident are quite large.	E27
9	This installation has a 'no-blame' culture.	B132/D48
10	Mistakes are corrected without punishment and treated as a learning opportunity.	F133

One or more of the above items contribute to the 'Trust', 'Learning organisation', 'Industrial relations and job satisfaction' SCMM elements. Also, perceived attitudes to H&S (whether those of self, colleagues or management) and safety behaviour are aspects that aid definition of the five levels of the SCMM.

Safety priorities

1	I aim to reduce the risks at home.	F26
2	I take care of my family's safety at home.	F27
3	I am careful at home.	F28
4	I assess the risks before acting at home.	F29
5	I am careful to avoid accidents at home.	F30

The above items may help indicate whether employees are applying the H&S lessons from the workplace to their non-work activities and those of their families. Positive responses may be indicative of an organisation at a higher level of safety culture maturity.

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PART 2   DETAILED ITEM COMPARISON

PART 1

REVIEW OF SAFETY CLIMATE TOOLS

1 Introduction

1.1 BACKGROUND

It is widely accepted that an effective management process needs to be in place if risks to health, safety and the environment from an organisation's activities are to be controlled effectively. There are limits to what can be achieved through hardware and technological solutions alone. Similarly, the introduction of safe systems of work and operating rules and procedures are of limited use if they are not complied with.

Human factors have a specific part to play in achieving and maintaining high standards of health and safety. A major influence on people's safety related behaviour is the prevailing **health and safety culture** of the organisations in which they work. There are a number of definitions of 'health and safety culture'. The Advisory Committee for Safety in Nuclear Installations (ACSNI, 1992) describes safety culture as follows:

> 'The safety culture of an organisation is the product of individual and group values, attitudes, perceptions, competencies, and patterns of behaviour that determine commitment to, and the style and proficiency of, an organisation's health and safety management. Organisations with a positive safety culture are characterised by communications founded on mutual trust, by shared perceptions of the importance of safety and by confidence in the efficacy of preventive measures.'

Turner (1991) described a 'good' safety culture as one that encourages people to care about adverse outcomes. The CBI (1990) offered a succinct definition of safety culture as the 'way things are done around here'. For those who find it helpful to distinguish between health and safety <u>culture</u> and **health and safety climate**, the CBI definition aligns more closely with the common understanding of the use of 'climate'. This term tends to be used at a more local level to describe the tangible outputs of an organisation's health and safety culture as perceived by individuals or work groups at a point in time. In general terms a company may have, or aspire to, an overall health and safety culture with specific attributes, but underlying this will be a range of health and safety climates that may differ over time, between groups of people, between sites and so on.

The Step Change Behavioural Issues Task Group (Step Change in Safety, 1999) has described safety culture as: *To revise as advised by S Williams.*

> 'the collective values and attitudes of the people in the organisation. Safety climate can be regarded as the surface features of the safety culture determined from the workforce's attitudes and perceptions at a given point in time. It is a snapshot of the state of safety providing an indicator of the underlying safety culture of an organisation.'

Some feel that safety climate can be considered to be effectively the same as safety culture. Whether or not a distinction is seen is not too important. What <u>is</u> important is that there is a common understanding through, and across, all levels of an organisation of the terms that are in use and their associated meanings. It can assist in creating ownership of the systems and processes used if organisations develop bespoke definitions that have real meaning for their own businesses and those that work in them.

Although most organisations acknowledge that attention needs to focus on the 'people part' of health and safety it has not always been clear:
(a) how to establish the nature of the current situation
(b) how to determine suitable and realistic goals to aim for
(c) what mechanisms could, or should, be used to help reach these goals
(d) how to establish whether real improvements have been made

Over recent years, collaborative effort - from across industry sectors, researchers, consultants, trainers, regulatory authorities and others - has seen considerable progress being made. A number of **safety culture/climate tools and methodologies** have been developed, piloted and applied in 'real' working environments. Depending on the nature of individual tools, they may be applied to address one or more of the needs listed above. Use of these tools can be an effective way of encouraging and maintaining employee involvement in their safety climate, if people's views are sought and they are then actively involved in implementing improvement actions based on the information obtained.

1.2 AIMS OF THE GUIDE

The HSE considers that the safety climate/culture tools developed under projects in which they have been involved should be introduced to the wider community of potential users, both in the oil and gas industry and in other industry sectors. The emphasis is on those tools that have been developed in collaboration with the oil and gas industry or that are generic in nature so could be readily applied in this particular industry sector.

This Summary Guide is intended to address three overall objectives:
1. To provide summary information on a number of questionnaire-based tools that have been developed, with the aid of HSE funding, to measure the safety climate of organisations. [Part 1]
2. To carry out a detailed comparison of individual questionnaire items. [Part 2]
3. To identify, if possible, which safety climate tools and/or specific questionnaire items appear to be most useful in helping to establish the current state of maturity of an organisation or installation. [Part 2]

1.3 SELECTION OF TOOLS TO BE REVIEWED

The HSE has played a key role in development of a number of tools. Development of their own tool (the **Health and Safety Climate Survey Tool**) involved close collaboration with 'volunteer' companies who piloted its use. They have also participated in joint industry projects (JIPs), where a research contractor develops a tool in close collaboration with HSE and a number of industrial participants. The Health and Safety Climate Survey Tool is fully developed and already in use across a wide range of employment sectors. It was purposely designed for wide applicability. Many other existing tools continue to be developed and refined, taking account of lessons learned from their past use. However, this does not mean that these tools cannot be applied beneficially in their current form. Although developmental work is continuing, operational tools are now available. Some are in a form that only requires use of companies' in-house resources whereas others need to make use of trained external consultants.

The six tools for comparison are detailed here. For ease of reference in the detailed item-by-item comparison in Part 2 of the Guide, each tool has been allocated a coding, shown in brackets.

- The **Health and Safety Climate Survey Tool [HSCST]** developed by the HSE and released in December 1997.
- The Aberdeen University[8] **Offshore Safety Climate Questionnaire** was developed and further refined under a number of research projects partially funded by HSE's Offshore Safety Division. Three versions are included in the comparison exercise.
  - The Offshore Safety Questionnaire, a modified version of the 1994 Offshore Risk Perception Questionnaire, used in the joint industry project (HSE ref: Project 3366) *'Human and organisational factors in offshore safety'* in 1996 **[OSQv1]**
  - The Offshore Safety Climate Questionnaire used in the joint industry project (HSE ref: Project 3661) *'Factoring the human into safety: translating research into practice'* during 1999 **[OSQ99]**
  - The Computerised Safety Climate Questionnaire, piloted with an oil company in 1997 **[CSCQ]**
- The Loughborough University **Safety Climate Assessment Toolkit** developed and used in the joint industry project (HSE ref: Project 3389) *'The measurement of safety climate in safety cases'* in 1997 **[LSCAT]**
- A **Safety Climate Questionnaire** developed by Quest Evaluations and Databases Ltd for use in a joint industry project (HSE ref: Project 3626) *'Safety and performance enhancement in drilling operations by human factors intervention (SPEDOHFI)'* in 1998 **[QSCQ]**

This Guide's focus on only six Safety Climate tools should not be interpreted as meaning that these are the only tools that are suitable for use in the oil and gas industry. There are other tools that are available for use. The reader is referred to Section 4, Other sources of information.

1.4 READERSHIP AND USE OF THE GUIDE

This Guide should assist those in the oil and gas industry who are interested in measuring and assessing the existing safety climate in their organisations, with the intention of identifying the priority areas for focussing improvement effort. The questionnaire tools described can also be used periodically to assess progress made. The Guide does not provide advice on the range of behavioural modification tools available nor on which may be best suited for use at different stages of organisational maturity. The reader is referred to Section 4 for details of where to find such information, as well as other sources of useful information.

The range of parameters covered and level of detail provided gives the reader preliminary indications of:
- what types of tools are available
- what the different tools are designed to do
- the use made of particular tools to date
- where to go for further information

The decision on what tool is most suited to a particular company and set of circumstances is very much case-specific and the final decision should rest with the intended user organisation. The Guide should be seen as a starting point for the user in gathering the information needed to enable informed decisions to be made. Some indications are given, where possible, of which safety climate tools and/or specific questionnaire items appear to be most useful in helping to establish the current

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[8] Early development of the Offshore Safety Climate Questionnaire was carried out while the research team was based at Robert Gordon University.

state of maturity of an organisation or installation. This is a new approach which is under discussion and likely to undergo further development (Fleming, 1999).

Developing and improving an organisation's existing safety culture requires a multi-faceted approach, there is no single simple 'quick fix'. One element that is receiving increasing interest is the use of behavioural modification programmes. Establishing where a company or installation is in terms of its safety culture maturity is a prerequisite to selecting appropriate behaviour modification programmes and implementing them effectively. A draft Safety Culture Maturity Model (SCMM) has been developed in work being carried out by The Keil Centre for the HSE and the Step Change Behavioural Issues Task Group (see Section 1.6 and Fleming, 1999).

Finally, the review and comparison of the safety climate tools should not be interpreted as ranking tools in terms of how 'good' or 'poor' they are. Rather it should be seen as indicating that what could suit one situation may, for very good reasons, not be best suited in other circumstances.

1.5 COMPARISON PARAMETERS

The parameters applied for describing and/or comparing the tools surveyed are detailed in Table 1.1.

Table 1.1: Parameters for describing and comparing safety climate tools

1 Title of tool
2 Developer Organisation's name
3 Points of note Summary of key points from parameters 4 to 13.
4 Overall aims of the tool
5 Nature of the tool Is the tool fundamentally a question set? If not, what form does it take? Is it applied as a postal questionnaire, telephone questionnaire, via focus groups, telephone interviews, face-to-face interviews, or can several approaches be used? In application, is the tool paper-based, computer software based or can it be either? How are analyses carried out?
6 Applicability to different industry sectors Is the tool generic or industry-specific? If the tool has been developed as industry-specific, is it adaptable for wider use with/without expert help? Is the tool applicable to all companies regardless of size or only to companies in a certain size range? To what extent is customisation possible?
7 Applicability to different types of employees Is the tool designed to be applied to all employees in the same way? Do employees have to be grouped in some way? If sub-divisions are applied, can this be tailored to specific circumstances or is there only one way of doing it? To what extent is customisation possible? Is customisation under the control of the company user or does it have to be carried out by an external consultant?

8 Resources required
Includes:
- costs of initial purchase
- ongoing costs of external consultants or other external assistance to apply the tool, analyse results, present results, advise on actions, modify tool etc
- internal resources (staff time) to complete questionnaires, analyse results, consult and take remedial actions
- costs associated with putting remedial measures in place
- equipment
- whether in-house resource alone is sufficient. If so, is this encouraged where possible? Is external expert assistance (eg for analysis and interpretation of results) essential?

9 Use of the tool to date and validation
Which industry sectors has the tool been used in and by how many organisations?
Has the tool been used solely in the UK or more widely?
How many years of experience have been built up?
Have any benchmarking exercises been carried out to date?
If not, is use of the tool for benchmarking purposes being considered or planned for the future?
What degree of validation has there been?
Is norm data being collected? If 'yes', in what form? Is this data available to the researchers alone or also to companies who wish to make use of it?

10 Access to the tool
Does the tool have to be purchased?
Is there free (or priced) access via the WWW?
Is it available in CD ROM form?
Is the tool only available via the original developers and/or consultants who are licensed to use it?
Are there conditions attached to use?

11 Support available from the developer
Does the developer provide any form of ongoing support? If so, what type?

12 Listing of further information
Summary list of key sources of further information on the tool - eg conference papers, final reports, journal articles, relevant web sites etc

13 Contacts for further enquiries
Developer contact details (Name, organisation, address, phone, fax, e-mail)

There are a number of factors that need to be considered regardless of which safety climate tool is to be used. These 'key considerations' include:

- demonstration of senior management commitment - a fundamental pre-requisite is that there is <u>real</u> and visible senior management commitment, both to using the tool properly and to doing something with the results
- encouraging company use of safety climate survey tools - not all organisations will be convinced that use of safety climate survey instruments would be beneficial: the benefits will need to be made clear
- encouraging employee participation - safety climate tools can be used to promote employee involvement in health and safety, not just by completing the questionnaire but by being involved in the whole continuous improvement process
- response rates - good, ie high, responses rates need to be achieved if use of a questionnaire survey tool is to provide an accurate picture of the prevailing safety climate in an organisation
- confidentiality issues - it is important to be able to guarantee that individuals are not identifiable to anyone within their company from their completed questionnaires. This may be particularly

important in those organisations at the lower levels of the draft Safety Culture Maturity Model (SCMM) (see Section 1.6).

These factors are discussed in more detail in Section 2, ahead of the review of the individual tools.

1.6 ORGANISATIONAL MATURITY

One of the overall objectives of this Guide is to identify, if possible, which safety climate tools and/or specific questionnaire items appear to be most useful in helping to establish the current state of maturity of an organisation or installation. This requires an understanding of the elements that comprise safety culture maturity and of the developmental stages through which an organisation progresses as its safety culture matures. To enable this, reference has been made to related work carried out by The Keil Centre for the HSE and the Step Change Behavioural Issues Task Group (Fleming, 1999). A draft Safety Culture Maturity Model (SCMM) has been developed to assist organisations in: (a) establishing their current level of safety culture maturity; (b) identifying the actions required to improve their culture.

According to the SCMM, the safety culture maturity of an organisation consists of ten elements:
- Management commitment and visibility
- Communication
- Productivity versus safety
- Learning organisation
- Safety resources
- Participation
- Shared perceptions about safety
- Trust
- Industrial relations and job satisfaction
- Training

The level of maturity of an organisation or installation is determined on the basis of their maturity on these elements. It is likely that an organisation will be at different levels on the ten components of the SCMM. Deciding which level is most appropriate will need to be based on the average level achieved by the organisation or installation being evaluated.

The SCMM is set out in a number of iterative stages. It is proposed that organisations progress sequentially through the five levels, by building on the strengths and removing the weaknesses of the previous level. The five levels are:
- Level 1 - Emerging
- Level 2 - Managing
- Level 3 - Involving
- Level 4 - Cooperating
- Level 5 - Continually improving

The key characteristics of each level are described overleaf.

Level One: Emerging
Safety is defined in terms of technical and procedural solutions and compliance with regulations. Safety is not seen as a key business risk and the safety department is perceived to have primary responsibility for safety. Many accidents are seen as unavoidable and as part of the job. Most frontline staff are uninterested in safety and may only use safety as the basis for other arguments, such as changes in shift systems.

Level Two: Managing
The organisation's accident rate is average for its industrial sector but they tend to have more serious accidents than average. Safety is seen as a business risk and management time and effort is put into accident prevention. Safety is solely defined in terms of adherence to rules and procedures and engineering controls. Accidents are seen as preventable. Managers perceive that the majority of accidents are solely caused by the unsafe behaviour of front-line staff. Safety performance is measured in terms of lagging indicators such as lost time injuries (LTI) and safety incentives are based on reduced LTI rates. Senior managers are reactive in their involvement in health and safety (ie they use punishment when accident rates increase).

Level Three: Involving
Accident rates are relatively low, but they have reached a plateau. The organisation is convinced that the involvement of frontline employees in health and safety is critical, if future improvements are going to be achieved. Managers recognise that a wide range of factors cause accidents and the root causes often originate from management decisions. A significant proportion of frontline employees are willing to work with management to improve health and safety. The majority of staff accept personal responsibility for their own health and safety. Safety performance is actively monitored and the data is used effectively.

Level Four: Cooperating
The majority of staff in the organisation are convinced that health and safety is important from both a moral and economic point of view. Managers and frontline staff recognise that a wide range of factors cause accidents and the root causes are likely to come back to management decisions. Frontline staff accept personal responsibility for their own health and safety and that of others. The importance of all employees feeling valued and treated fairly is recognised. The organisation puts significant effort into proactive measures to prevent accidents. Safety performance is actively monitored using all data available. Non-work accidents are also monitored and a healthy lifestyle is promoted.

Level Five: Continuous improvement
The prevention of all injuries or harm to employees (both at work and at home) is a core company value. The organisation has had a sustained period (years) without a recordable accident or high potential incident, but there is no feeling of complacency. They live with the paranoia that their next accident is just around the corner. The organisation uses a range of indicators to monitor performance but it is not performance-driven, as it has confidence in its safety processes. The organisation is constantly striving to be better and find better ways of improving hazard control mechanisms. All employees share the belief that health and safety is a critical aspect of their job and accept that the prevention of non-work injuries is important. The company invests considerable effort in promoting health and safety at home.

The reader is referred to The Keil Centre's report for further details (Fleming, 1999).

2 Key Considerations

Before any safety climate tool is used there are a number of issues that need to be considered and addressed. The key considerations are outlined here but further detail can be found in the Process guidelines associated with HSE's Health and safety climate survey tool (HSE, 1998).

2.1 DEMONSTRATION OF SENIOR MANAGER COMMITMENT

Use of a safety climate questionnaire is only part of a process for instigating and encouraging improvement; it is not an end in itself but needs to be incorporated in a larger, ongoing improvement project. The potential user needs to be clear about:
- why they wish to use the questionnaire
- what they hope to achieve from its use
- where its use fits within their overall health and safety improvement strategy
- how they will communicate the results
- whether they are prepared to act on the results.

A fundamental pre-requisite is that there is <u>real</u> and visible senior management commitment, both to using the tool properly and to doing something with the results. This cannot be stressed too much. Without this commitment, applying the tool can result in negative outcomes, as the workforce sees yet another survey being carried out without any related improvements to their working environment. This perception is counter-productive to the improvement process. It can also make it virtually impossible to convince employees of the value of participating in any future surveys if they believe their views are ignored.

2.2 ENCOURAGING COMPANY USE OF SAFETY CLIMATE SURVEY TOOLS

It cannot be assumed that all companies are convinced that use of safety climate survey instruments would be beneficial. There is a wide range of reasons why some organisations may be reluctant to make use of such tools. These include:
- not perceiving there to be a need
- worries about what may be discovered - if a survey gives clear indications of there being problems, they cannot easily be ignored
- resource issues (including set-up effort, staff time to complete the questionnaires, availability of time and funds to address the outcomes)
- difficulties associated with signing up to long term commitments with no defined end date
- concerns that rival organisations will hear of any problems identified
- the belief that there is 'nothing (positive) in it for me', that all outcomes will be negative and incur costs
- concern that any benchmarking (internally, or externally against competitors) may produce results that are markedly worse than those for the other groups, sites or competitors. This links

to an earlier point as, if problems are revealed, it will be difficult to justify not taking action to address them.

It is important that - where the above attitudes prevail - the benefits of using safety climate survey instruments are made clear. These include:

- a well-designed safety climate questionnaire being a cost effective and relatively straightforward way of gathering the data for psychosocial measurements, essential to the continued success of the company
- employee involvement in the entire process assisting greatly in identifying the key issues that need to be addressed, as well their relative importance and potential solutions. There can be additional business improvement spin-offs beyond the health and safety sphere, such as increased productivity and decreased staff turnover.
- the assurance that individuals will not be identifiable to anyone within their company. This should encourage them to express their true feelings without any fear of reprisal.
- having a mechanism to assist in optimising targeting of limited funds on health and safety related improvements
- being able to measure change over time, and thus assess which improvement activities are most successful
- improved safety - stemming for example from the remedial actions taken to address the findings of safety climate surveys - having been shown to be associated with improved productivity and business performance
- stressing the advantages of being able to benchmark safety climate, either internally (eg between departments, between geographic locations) or against other organisations in the same industry sector

2.3 ENCOURAGING EMPLOYEE PARTICIPATION

Safety climate tools can be used to promote employee involvement in health and safety, not just by completing the questionnaire but by being involved in the whole continuous improvement process. This is particularly true in relation to follow-up. Having a sense of 'ownership' of solutions means the workforce is far more likely to adopt them. Use of such tools can also give renewed impetus to safety committees and safety representatives by involving them in both planning and carrying out surveys, and in using the results to improve standards.

Good communication is key to all aspects of the process but particularly so in encouraging employees to participate in the first place and then in maintaining their interest. People are more likely to complete a questionnaire if they have been told why it has been issued, who has authorised its issue and what will happen as a result of completing it. Planning of communications needs to recognise that the survey process raises people's expectations and they may expect the results to be available swiftly, issues to be addressed immediately, with marked improvements in health and safety performance quickly following on. Well-planned communication should prevent unrealistic expectations arising. It is particularly important to provide rapid feedback on the issues identified, even if early feedback cannot do much more than say that the issues are under review and that a fuller response will follow by a specified data.

If confidentiality can be assured, and employees believe this to be the case, safety climate questionnaires provide an opportunity for people to express views anonymously which they might not want to air more openly. Inclusion of space in the questionnaire form to express their own

opinions and offer suggestions for improvements can yield valuable material <u>if</u> the workforce feel that attention will be paid to these responses.

2.4 RESPONSE RATES

Good, ie high, response rates need to be achieved if use of a questionnaire survey tool is to provide an accurate picture of the prevailing safety climate in an organisation. There are some fundamental logistical issues to consider. For example, a questionnaire may be long and take a considerable time to read and complete. This increases the likelihood of a recipient not completing and returning the questionnaire. Even if it is returned, it may not have been completed in full. Also of concern is the questionnaire being completed but in haste, with the recipient not taking sufficient time to read and provide a considered response to each item. If the workforce have not seen any obvious outcomes that they can link back to a previous survey then they are likely to be less responsive to any subsequent surveys. Response rates may also suffer if a survey tool is used without thorough preparation and if staff at all levels of an organisation have not been been fully engaged in the safety improvement process from the start.

The response rate is an indicator of whether the workforce believes that participating in the survey will result in worthwhile outcomes. Actions to encourage questionnaire completion include, for example, specific time being made available to complete a questionnaire during work hours (perhaps during a team or safety briefing) or the promise of receiving direct feedback from those conducting the survey. Incentives such as management agreeing to contributions to charity, the size being linked to the scale of response, can sometimes provide an additional boost to response rates.

2.5 CONFIDENTIALITY ISSUES

Confidentiality issues need to be considered both within an organisation and externally. Are individuals/groups of individuals identifiable from the completed questionnaires? Linking to an earlier issue, many people will not wish to complete a questionnaire that requires them to reveal their names. Even if they do complete the questionnaires, they may be inclined to give the responses that they think management want rather than expressing their true opinions. Identities can be revealed even without names being requested. For example there may be 5 women in a predominantly male workforce working in a particular department, and of these only one is a production supervisor. Hence, if 'department', 'sex' and 'job title' information are requested, this respondent is identifiable.

Difficulties with retaining confidentiality are often given as one reason for making use of external consultants to conduct surveys and analyse the data collected. Others argue that with thorough planning, good communication, a pre-existing 'no-blame culture' and strong trust between the workforce and the management, such additional precautions are unnecessary. Confidentiality is likely to be a particular strength of questionnaire survey tools when the safety culture maturity of an organisation (as defined in the draft SCMM model) is at the lower levels. In this situation, there may be some reluctance among the workforce to speak out on the real issues as opposed to symptoms. Confidentiality aspects may be of less concern to employees as the organisational maturity improves.

In any external benchmarking exercise, at one extreme a company may need to be assured that its participation is not revealed to other companies, it may agree to its participation being known but not to details of the ranking achieved or, at the other extreme, it may agree to its ranking and even

detailed results being revealed. This latter option is only likely to be favoured by a company that is confident it has an exemplary health and safety record.

2.6 KEY CONSIDERATIONS - RECOMMENDATIONS

The overall success (or lack of success) of the survey and follow-on actions is dependent on the quality of the planning and communication that takes place. Use of a climate survey tool is not an end in itself. It is important that all parties recognise that it is a part of an overall improvement process that includes: ***Assess*** (this is the role of the safety climate survey tool), ***Plan***, ***Implement***, and ***Monitor impact***, before returning to the ***Assess*** stage. The following recommendations are made:

- Preparation is essential before launching into the use of a climate survey tool. Any tool is unlikely to work well - or may even have a negative effect - if senior management put insufficient effort into preparation, do not commit to act on findings (whatever they are) and fail to involve the entire workforce throughout the process.
- Recipients of the questionnaire need to know why the survey is being done and how the results will be used.
- It is essential that there is a rapid, but realistic, post-survey implementation plan. Some visible results need to be achieved as soon as possible after completion of the survey.
- The results of the survey need to be fed back to the surveyed group as rapidly as possible.
- Issues or areas of weakness identified by the survey need to be discussed with the respondents to clarify the details of their concerns.
- After clarification, a plan of action should be developed to address the most significant weaknesses. This plan may include behaviour modification programmes.
- During implementation of the action plan, some form of monitoring needs to be in place to check progress. The results of the monitoring programme should be fed back to the employees concerned.
- Repeat climate surveys should not be undertaken before an action plan to address weaknesses from the first survey has been implemented.
- Following on from the previous point, sufficient time needs to be allowed to collect and process survey forms, interpret the results, develop an improvement plan and then start to pursue actions that could make a difference. A repeat climate survey should not be undertaken until any remedial measures put in place have been allowed sufficient time to achieve results. It may also take time for improvements to be felt by employees to such an extent that they would make significantly different responses to the questionnaire items. To be able to judge with any degree of certainty whether there is a real difference in safety climate, a dwell time of 18 months to 2 years is required. Therefore, it is strongly suggested that the time interval between surveys should not be less than two years.
- Those involved in the development of the draft SCMM believe that, for organisations that are towards the lower end of the maturity curve, a follow-up climate survey is suitable for assessing the impact of actions taken. However, for organisations higher up the curve, alternative assessment techniques may be more appropriate.

3 Review of Safety Climate Tools

3.1 HEALTH AND SAFETY CLIMATE SURVEY TOOL [HSCST]

1 Title of tool
Health and Safety Climate Survey Tool
2 Developer
Health & Safety Executive
3 Points of note
• A generic tool that can be used in any industry sector.
• Low purchase cost - eg £200 for single site up to 100 employees.
• 71 item questionnaire, with standard 5 point response scale. [Estimated completion time - 15 to 20 minutes.]
• No oil & gas industry specific items.
• The accompanying guidance booklets provide much useful advice - written in easy-to-understand language - on the entire safety climate improvement process (including how to encourage employee 'buy in', communicating results, identifying issues and implementing improvement plans).
• The comprehensive nature of the tool package is such that most organisations should be able to make use of it without external assistance.
• 10,000 people across 40 sites completed the questionnaire during its development.
• Around 400 organisations had purchased copies of the tool by December 1999.
• Support available via a user helpline.
• Confidential benchmarking service available.
4 Overall aims of the tool
• The tool promotes employee involvement in health and safety by seeking people's views on some key aspects of health and safety in their organisation and then involving them in seeking improvements based on the information that emerges.
• Use of the tool provides companies with information about aspects of their existing health and safety climate and can be used to highlight areas of strength and areas where there may be room for improvement.
• The tool can be used to assess change over time of the safety climate, for example, as part of the evaluation process for assessing the impact of health and safety initiatives.
5 Nature of the tool
The <u>tool package</u> comprises:
• an employee questionnaire
• a manual describing a process for undertaking a survey using the questionnaire and then taking the results forward (the Process Guidelines)
• computer software which allows organisations to customise the survey to their organisational structure using their own terms, print the questionnaire, analyse the results in a variety of ways and print reports showing results in graphical and tabular form
• a software manual which provides instructions on installing and using the software
<u>Questionnaire</u>
The tool is a questionnaire with 71 statements, all requiring responses on a five point Likert-type scale (ranging from *'Strongly disagree'* to *'Strongly agree'*). There is an optional section for respondents to make their own suggestions for improvements. Other information sought relates to whether the individual is defined as a 'manager', 'supervisor' or 'worker' (though these terms can be customised) and there is the option for the user to include a further 8 demographics of their own choice. These might include, for example, department, function, age and experience details. Completion of the questionnaire should take about 15 to 20 minutes.
The statements cover 10 dimensions or 'factors', each describing the issues that its related statements are believed to explore. The 10 factors are:
• Organisational commitment and communication
• Line management commitment
• Supervisors' role
• Personal role

- Workmates' influence
- Competence
- Risk taking behaviour and some contributory influences
- Some obstacles to safe behaviour
- Permit-to-work systems
- Reporting of accidents and near misses

There are also 2 statements that deal with people's general satisfaction with their jobs. The questionnaire would normally be used in paper-based form, although the final decision on what suits their circumstances best rests with individual organisations. The Process Guidelines offer advice on questionnaire distribution and collection methods.

Analyses

The analysis part of the tool is in the form of a software-based package, which includes instructions and facilities to analyse the data and present the results in graphical formats. Example results are provided, with advice on their interpretation. Sufficient information is provided to enable companies to carry out data analysis in-house.

The graphical output allows comparisons to be made for managers, supervisors and workforce (or customised company-specific terms). For each factor, responses for each staff type can be split into 'favourable', 'unfavourable', and 'neutral', the factor scores being derived from the responses to all the statements within the factor. Information relating to the individual statements that make up each factor can be examined. Analysis of data can be carried out at the site, division or corporate level, depending on how the user has chosen to undertake the survey. So, for example, comparison between different sites can be done by factor and by statements, highlighting where there are statistically significant differences. The software also allows results of 'before' and 'after' surveys to be compared. Many more analysis options are described in the software manual, along with advice on interpretation.

6 Applicability to different industry sectors

The questionnaire has been designed to be generic and can be used in any industry.

The tool can be customised by for example, inserting the company logo, giving the questionnaire a new title, inserting company-specific introductory text, and reflecting the user's own organisational structure.

The tool is applicable to all companies regardless of size. However, various issues need to be considered when determining the scope of any survey. For example, any sample chosen must be representative of the total population, and too small a sample may compromise anonymity as well as affecting the validity of the results. Accompanying guidance advises that, if the survey is to cover a sample of the people on a site or within a particular business unit, specialist advice may be required to ensure that the sampling strategy chosen is statistically valid.

7 Applicability to different types of employees

The tool is designed to be applicable to all employees. The default questionnaire uses the terms 'managers', 'supervisors' and 'workforce' (with definitions given) but the user determines where the split between the three groups occurs in their own organisation. Other terms can be substituted, such as 'team leader' in place of 'supervisor', with definitions that reflect the structure of a particular organisation.

8 Resources required

Initial expenditure to purchase the tool:
- Single site up to 100 employees   £200
- Single site 101 to 250 employees   £300
- Single site 251 or more employees   £500
- Unlimited use on multiple sites   £2,000 (pack includes 20 copies of software & manuals)

There will be internal expenditure for staff time in questionnaire preparation, completion by the workforce, input of results into the software, data analysis, and report production.

On-going expenditure will be needed for follow-up time in communicating results, taking things forward (including identifying issues and implementing improvement plans) via the use of steering committees and focus groups, and repeating the survey at a later date to check on progress.

The minimum system requirements are free hard disk space of 4MB, 4MB of RAM (8MB for over 12 locations).

The software runs in Windows 3.1, Windows for Workgroups 3.11 or Windows 95 operating environments.

The comprehensive nature of the tool package is such that it should enable most organisations to make use of it without needing to incur the additional costs associated with obtaining external assistance.

9 Use of the tool to date and validation

The developer considers the questionnaire to be well validated. Questionnaire development started in 1997 and 10,000 people, across 40 sites, completed the questionnaire during the development process. By December 1999, around 400 organisations had purchased copies of the tool. Users come from a wide range of employment sectors, including chemicals, nuclear, offshore oil & gas, utilities, mines, food, paper, manufacturing, construction and health trusts. The tool has already been used in Germany, the USA and the Netherlands, as well as in the UK.

Contact has been maintained with some users to find out how they are using the tool. Findings include a Year 1/Year 3 comparison carried out with the co-operation of one company revealing a statistically significant improvement in safety climate over this period.

Benchmarking
HSE launched a benchmarking service in November 1999. It is being operated on HSE's behalf by Opinion Corporation International. The benchmarking service is confidential and HSE will not have access to data from individual organisations. Organisations who wish to use this service can submit their data and choose from a range of options to benchmark against data submitted by other users. A report will be provided detailing the benchmarking results. The underlying norm database will be built up as organisations make use of the benchmarking service but the database will not be made available for external use.

10 Access to the tool

The tool can be purchased from:
HSE Books
PO Box 1999
Sudbury
Suffolk CO10 6FS.   Tel: 01787 881 165   Fax: 01787 313 995

Brief details of the tool can be found on the HSE Books web site (http://www.hsebooks.co.uk) and orders for the tool (ISBN 071761462X) and a free information pack (MISC097) can be placed electronically.

Restrictions on use
Direct purchase by consultants is not allowed. This does not prevent a company making use of an external consultant if they wish.

11 Support available from the developer

A user helpline is available offering telephone support on any issues regarding installation or using the software. (The fee for the first 12 months of the helpline is included in the purchase price.)

12 Listing of further information

- Health and safety climate survey tool - Information pack MISC097 HSE Books 1997
- Health and safety climate survey tool - Process guidelines (part of tool package) ISBN 071761462X HSE Books 1998
- HSE press release E234:97 - 5 December 1997 'Let employers log on to health and safety through HSE's new computer software'
- Summary details are available on the HSE Books web site (http://www.hsebooks.co.uk)
- HSE press release E223:99 - 15 November 1999 'HSE launches benchmarking service for users of the Health and Safety Climate Tool'

13 Contacts for further enquiries

General enquiries should be directed to the HSE InfoLine   Tel: 0541 545500

Benchmarking
Further information on the benchmarking service can be obtained from:
Opinion Research International   Tel: 0207 675 1196

3.2 OFFSHORE SAFETY QUESTIONNAIRE [OSQV1]

1 Title of tool
Offshore Safety Questionnaire[9]
2 Developer
Robert Gordon University / Aberdeen University[10]
3 Points of note
- Originally developed for use in the offshore oil & gas industry, although has been used more widely in the energy industry.   - May be used without expert external assistance, subject to a competent person(s) being involved in the distribution of the questionnaire and analysis and interpretation of the data.   - Questionnaire and associated reports and papers describing its past use are available in the public domain (see 12. Listing of further information).   - No payments or pre-conditions are attached to use of the questionnaire, although the developers request that potential users register their intention to use the tool.   153 item questionnaire with true/false and 5 point response scales, plus 12 general information and 11 personal accident history questions. [Estimated completion time - 45 minutes.]   - Enables internal benchmarking (eg site against site) as well as external benchmarking.   - No longer used in complete form by the developers: it is more usual for parts to be used to allow customisation to fit the needs of particular projects and user organisations.   - Support offered by the developer includes: customisation of the tool for in-house use; distribution and collection of questionnaires; analysis and interpretation of the data; preparation of summary reports; in-house presentations of outcomes.
4 Overall aims of the tool
- The tool provides companies with information about their current safety climate and may highlight areas of weakness and of strength.   - Specifically, the tool measures perception of offshore risk and safety, concentrating on those human and organisational factors deemed to be of prime importance from earlier research (joint industry funded project (HSE ref: Project 3125) 'Risk perception and safety in the offshore oil and gas industry')   - The tool can be used to examine improvement of the safety climate over time if used periodically.
5 Nature of the tool
Questionnaire The tool is a paper-based questionnaire consisting of 153 statements, that either require true/false answers or answers on a five point Likert-type scale (eg ranging from *'Yes, agree to a high extent'* to *'No, do not agree at all'* or from *'Very unsafe'* to *'Very safe'.*) The choice of responses available depends on the nature of each section of the questionnaire. There are also 12 questions that allow collection of general information (including job title, whether employed by operating or contracting company, shift details etc) and 11 questions relating to individuals' accident histories. Completion of the questionnaire takes about 45 minutes. The questionnaire collects information on the following: - General information   - Job (work pressure, work clarity, job communication, safety behaviour)   - Risk perception - main hazards   - Risk perception - work task hazards   - Assessment of safety   - Safety attitudes   - Contractor safety attitudes*   *15 statements, only to be answered if employed by a contracting company*   - Job security   - Accident history

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[9] Earliest of three versions of the Aberdeen University Offshore Safety Climate Questionnaire included in the comparison exercise.

[10] Early development of the OSQ was carried out while the research team was based at Robert Gordon University.

The 'Risk perception - main hazards' statements cover 3 factors:
- Hazards to the installation
- Occupational hazards
- Catastrophes

The 'Assessment of safety' statements cover 3 factors:
- Accident prevention
- Incident mitigation
- Emergency response

The 'Safety attitudes' statements cover 10 factors:
- Speaking up about safety
- Attitude to violations
- Supervisor commitment to safety
- Attitude to rules and regulations
- OIM commitment to safety
- Safety regulation
- Cost versus safety
- Personal responsibility for safety
- Safety systems
- Over-confidence in own safety

The 'Contractor safety attitudes' statements cover 3 factors:
- Management commitment to safety
- Contractor company commitment to safety
- Confidence in operating company

The questionnaire is usually distributed and collected by post or by hand.

Analyses

Where use of the questionnaire has been as part of a project run by Aberdeen University, the researchers carry out the data management and analyses using the SPSS statistical package. The statistical methods employed depend on the relationships being investigated but commonly include: factor analysis (principal components analysis), analysis of variance (ANOVA), chi-square, correlation and multiple regression. These enable investigation of, for example:
- Company differences
- Differences between personnel categories in accident involvement
- Differences in accident involvement according to the human and organisational factors measured in the questionnaire
- Accident involvement - relationship between variables
- Relationships between factors measured on the scales
- Predicting offshore workers' safety behaviour, safety attitudes and assessment of safety

Use of the questionnaire in the joint industry project (HSE ref: Project 3366) 'Human and organisational factors in offshore safety', allowed each company to identify their own results and 'benchmark' their performance against that of the other project participants. The tool can also be used to allow companies to benchmark internally (eg site against site).

6 Applicability to different industry sectors

The questionnaire was developed specifically for use in the offshore oil and gas industry. A slightly modified version (the Gas Terminal Safety Questionnaire) has been used at onshore gas terminals. The questionnaire has also been used in the power generating industries.

The questionnaire can be customised. It has been adapted to fit the needs of particular projects and user organisations. [See Freeman et al, 1998 and Chunlin et al, 1999 for details of customisation when used by Woodside Petroleum and Philips China Inc. respectively.]

The developers suggest a minimum sample size of 100, which implies a minimum company size of 100 employees assuming that all could be included in the sample. [Alternative techniques are suggested for measuring safety

attitudes and perceptions in small companies and in large companies where only a small number of workers agree to complete the questionnaire. Focus groups or face-to-face interviews may be more appropriate.]

7 Applicability to different types of employees
The questionnaire has been designed to be applicable across the workforce. Questions are included relating to occupation/job title, whether an individual is in a supervisory role, and if they are employed by an operating or a contracting company. There is an extra section for completion by contractor staff. Use in the joint industry project (HSE ref: Project 3366) 'Human and organisational factors in offshore safety' involved the questionnaire being distributed to all employees on 11 offshore installations and at 2 onshore installations.

8 Resources required
There is sufficient information available in the public domain (see 12. Listing of further information) to allow an organisation to apply the questionnaire without external assistance, subject to a competent person being involved in the distribution of the questionnaire and analysis and interpretation of the data. In practice this may mean that external expert help is required to provide sufficient human factor and statistical expertise to supplement in-house capabilities.

Internal expenditure will be required for staff time in questionnaire completion.

On-going expenditure will be needed for follow-up time in communicating results, taking things forward (including identifying issues and implementing improvement plans) via the use of steering committees and focus groups, and repeating the survey at a later date to check on progress.

Any customisation of the questionnaire is likely to require assistance, either from the developers or other external consultants. [The tool has been customised for use by major companies in the offshore and onshore energy sector (see 9. Use of the tool to date and validation.)] A customised questionnaire will require piloting and due account needs to be taken of the time and costs involved.

9 Use of the tool to date and validation
An earlier version of the tool (the Offshore Risk Perception Questionnaire) was developed and used in the joint industry project (HSE ref: Project 3125) 'Risk perception and safety in the offshore oil and gas industry' in 1994.

The questionnaire was refined for use in the follow-on project (HSE ref: Project 3366) 'Human and organisational factors in offshore safety' in 1996. Industry participants were: British Gas, BP, Coflexip-Stena, Conoco, Elf, OCA, Texaco and Total. A representative sample of 722 employees working on 11 offshore installations and 103 employees from 2 onshore installations were surveyed. Confidential reports were provided to each company. Open reports described the survey results whilst not revealing which results relate to which companies. Each company could identify their own results and so 'benchmark' their performance against that of the other project participants.

This version of the questionnaire was made available to a research team in Australia to allow benchmarking of UKCS safety climate data against data collected from Woodside Petroleum (Freeman et al, 1998). The Woodside survey used a sub-set of the Offshore Safety Questionnaire. The use of only part of the North Sea questionnaire was because of its length and wanting to prevent 'questionnaire fatigue' in respondents, plus the Woodside survey needing to cover health and environment as well as safety. The sample size was 682, of these 133 being offshore workers. Results were prepared in two formats. Firstly, the trends and patterns between different locations, employee groups, departments etc were identified in the traditional statistical format. The second format was in terms of practical actions or suggestions for HSE improvement. These practical suggestions for improving the organisational HSE culture were of more value than comparison of where each group falls on each question and scale.

The questionnaire has also been used by Phillips China Inc. It was used to survey 3 offshore facilities operating in the South China Sea. The required modifications to the questionnaire and analysis of results were made by Robert Gordon University, the results being benchmarked against the UK data reported in Mearns et al 1998. The questionnaire was completed by 345 offshore employees. Opportunities for improvement in the South China Sea were identified and an action plan developed and implemented. (Chunlin et al, 1999)

The developers have used the questionnaire in other consultancy work. They no longer use the complete OSQv1 questionnaire; it is more usual for parts to be used.

There has been guidance given (eg see Freeman et al, 1998) on actions to improve a company's safety climate/ culture. This focuses on the areas highlighted by use of the questionnaire as potentially weak and uses the research team's and companies' knowledge of the oil & gas industry and of methods of improving safety culture, to provide suggested ways forward.

At all stages of development, the Robert Gordon University / Aberdeen University questionnaires have benefited from input from focus group discussions, been subject to review by industry Steering Groups, and undergone rigorous piloting.

As the developers are no longer using the complete OSQv1 questionnaire, they are not setting up a norm database. Their current database consists of 722 offshore employees working on 11 installations operated by 6 companies and 103 employees at 2 gas terminals each operated by a different company. This database is not available for external use.

10 Access to the tool

The questionnaire is in the public domain (see Mearns, K., Flin, R., Fleming, M. & Gordon, R. (1998) *Human and Organisational Factors in Offshore Safety*. HSE, Report OTH 543 Suffolk: HSE Books). Potential users are requested to advise the developers of their intentions to use the tool (see 13. Contacts for further enquiries), although this is not a pre-condition attached to use.

The developers are keen to obtain details of results from use of the questionnaire but again this is not a pre-condition attached to use.

11 Support available from the developer

The developer can offer all forms of support necessary for use of the tool, although this is not a pre-condition attached to use. Services that can be provided include:
- customisation of the tool for in-house use
- distribution and collection of the questionnaires
- analysis and interpretation of the data
- preparation of summary reports
- in-house presentations of the outcomes

12 Listing of further information

- Flin, R., Mearns, K., Fleming, M. & Gordon, R. (1996) *Risk Perception and Safety in the Offshore Oil and Gas Industry*. HSE, Report OTH 94 454 Suffolk: HSE Books
- Mearns, K., Flin, R., Fleming, M. & Gordon, R. (1998) *Human and Organisational Factors in Offshore Safety*. HSE, Report OTH 543 Suffolk: HSE Books
- Chunlin, H., Chengyu, F. & Boben, M.E. (1999) Evaluating Effects of Culture and Language on Safety, *Journal of Petroleum Technology*, April 1999
- Freeman, M., Smeeton, R., Flin, R., Mearns, K. & Gordon, R. *Employees' Perceptions of Health, Safety and the Environment in an Australian Oil and Gas Producer: A Comparison with the North Sea*, SPE 50134, Paper presented at SPE Asia Pacific Oil and Gas Conference Exhibition, Perth, Australia, 12-14 October 1998.

13 Contacts for further enquiries

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3.3 OFFSHORE SAFETY CLIMATE QUESTIONNAIRE [OSQ99]

1 Title of tool
Offshore Safety Climate Questionnaire[11]
2 Developer
Aberdeen University[12]
3 Points of note
Background
It was considered that the OSQv1 questionnaire could be used as the basis for a safety benchmarking programme, with the aim of identifying, analysing and sharing best practice on human factor safety-related issues in the oil and gas industry. This is being pursued under the joint industry project (JIP)(HSE ref: Project 3661) 'Factoring the human into safety: translating research into practice'. A modified version of the OSQv1 was used on the UKCS in mid-1998. The questionnaire was modified further to reflect key performance indicators identified in the first phase of Project 3661. The latest version (OSQ99) was used in mid-1999. This repeat use at a one year interval was intended to allow a comparison across time to determine the impact of new initiatives.
- Developed for use in the offshore oil & gas industry.   - Can be used in stand alone manner or with other tools as part of an integrated approach.   - Use of the tool requires permission from Aberdeen University.   - There is no free use of the tool. It will only be available with involvement of an Aberdeen University Research and Industrial Services (AURIS) consultancy consortium and the original developers.   80 item questionnaire with mainly 3 or 5 point response scales, plus 10 general information questions. [Estimated completion time - 20 minutes.]   - Enables internal benchmarking (eg site against site) as well as external benchmarking.   - Consultancy support will include: customisation of the tool for in-house use; distribution and collection of questionnaires; analysis and interpretation of the data; preparation of summary reports; in-house presentations of outcomes.   - There is an intention to build up a norm database.
4 Overall aims of the tool
- The tool provides companies with information about their current safety climate and highlights areas of weakness and of strength.   - If used periodically, the tool can be used to determine the impact of new initiatives.   - Use of the tool allows benchmarking of installations/facilities, eg by comparing safety climate scores of individual installations against peer group 'best in class' and against peer group average.   - The tool has been used to form one element of a multiple perspective health and safety benchmarking process, the four perspectives being internal business process (H&S management); customer (workforce safety climate survey); financial (loss costing); and learning and growth.   - The tool has been used in an integrated manner with a management questionnaire to determine 'good H&S management practice' in terms of a 'safe' and 'satisfied' workforce and low accident/incident rates, but it can be used in a stand alone manner in other situations.
5 Nature of the tool
Questionnaire
The tool is a paper-based questionnaire consisting of 80 items, the majority requiring answers on a three or five point Likert-type scale (eg ranging from *'Yes, agree to a high extent'* to *'No, do not agree at all'* or from *'Very satisfied'* to *'Very dissatisfied'*). The choice of responses available depends on the nature of each section of the questionnaire. There are also 10 questions that allow collection of general information, including job type, whether operator or contractor staff, and accident histories. Completion of the questionnaire takes about 20 minutes.
The questionnaire collects information on the following:
- General information   - Communication   - Involvement in safety

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[11] Second of three versions of the Aberdeen University Offshore Safety Climate Questionnaire included in the comparison exercise.

[12] Early development of the OSQ was carried out while the research team was based at Robert Gordon University.

- Satisfaction with safety activities
- Work pressure
- Attitudes to safety
- Safety behaviour

A final section titled 'Satisfaction with safety' contains 19 statements, of which about half are also found in earlier sections. This section was designed to provide a 'high level' view of the perceived state of safety on an installation. However, the developers have found that this seems to be at the expense of much of the quality information provided by the detailed scales used elsewhere in the questionnaire.

The questionnaire is usually distributed and collected by post or by hand.

Analyses

Development and use of the questionnaire formed part of the JIP (HSE ref: Project 3661) run by Aberdeen University. The analyses were undertaken by the researchers. Data was entered into an SPSS database and various statistical analyses, including descriptive statistics and factor analysis (principal components analysis), were carried out. The questionnaire items cover the following factors:

- Involvement in safety
- Communication about safety issues
- Work pressure
- Attitudes to work and safety (which factors into: (i) perceived company commitment to health & safety; (ii) perceived supervisor competence in health & safety; (iii) perceived OIM competence in health & safety; (iv) willingness to report accidents/near misses)
- Safety behaviour frequency (which factors into: (i) rule violation frequency; (ii) rule violation due to production/ financial pressure)

The JIP has been completed since preparation of this Guide. The developers advise that analysis of variance indicated significant differences between the installations in their scores on the safety climate scales. Details of each installation's individual performance and a comparison against the other installations were fed back to the participating companies.

6 Applicability to different industry sectors

This questionnaire has been developed specifically for use in the offshore oil and gas industry under the JIP (HSE ref: Project 3661). The developers' intention is to use the questionnaire (or an abridged version) more widely in the future: it could be readily adapted for use in other sectors.

As this questionnaire is considerably shorter than the OSQv1 questionnaire (see Table 3.2), the developers advise that a sample size of 20 would be the minimum to allow extraction of any meaningful information. For most statistical analyses much larger data sets are required

7 Applicability to different types of employees

The questionnaire has been designed to be applicable across the workforce. Questions are included relating to type of work carried out, whether an individual is in a supervisory role, and if they are employed by an operating or a contracting company.

8 Resources required

To date, use of the OSQ99 has been limited to the ongoing JIP (HSE ref: Project 3661). The OSQ99 questionnaire and future versions will be made available for wider use but with costs and conditions attached. These include the tool only being available for use with the involvement of an AURIS consultancy consortium, and the original developers. Any customisation of the tool for in-house use will also incur external costs. For further information, initial contact should be made with either of the Aberdeen University personnel identified in 13. Contacts for further enquiries.

Internal expenditure will be required for staff time in questionnaire completion. On-going expenditure will be needed for follow-up time in communicating results, taking things forward (including identifying issues and implementing improvement plans) via the use of steering committees and focus groups, and repeating the survey in future to check on progress.

9 Use of the tool to date and validation

Refer to Table 3.2 for details of use of earlier versions of the tool and validation prior to the JIP (HSE ref: Project 3661). Industry participants in the current project are: AGIP, AMEC Process & Energy, BP Amoco, Coflexip-Stena Offshore, Conoco, Elf, Halliburton Brown and Root/AOC, Kerr McGee (formerly Oryx), Salamis/SGB, Transocean Sedco Forex, Shell, Texaco and Total.

In the second phase of the above project, the OSQ99 was used to survey 679 personnel on 10 offshore installations [704 personnel on 13 offshore installations were surveyed in the first phase using an earlier (OSQ98) version of the questionnaire]. Data analysis allowed facilities to be ranked according to their performance on the following scales or 'measures':

- Extent of involvement in health and safety issues
- Amount of communication about safety issues
- Work pressure
- Perceptions of company commitment to safety
- Perceptions of supervisor commitment to safety
- Perceived OIM competence in H&S
- Willingness to report accidents/near misses
- Level of satisfaction with safety activities
- Level of safety behaviour
- Attitudes to rules and regulations

The JIP has been completed since preparation of this Guide. The developers advise that analysis of variance indicated significant differences between the installations in their scores on the safety climate scales. Details of each installation's individual performance and a comparison of its performance against the other installations were fed back to the participating companies on the understanding that this information would be disseminated to the installation. A case study of how an installation's relative performance can be assessed is outlined in Volume 1 of the final report from the JIP (see 12. Listing of further information). The scales *perceived management commitment to safety, willingness to report accidents* and *perceived supervisor competence* predicted self-reported accidents for respondents in all job roles, and for subsets of workers engaged in more hazardous tasks. Structural Equation Modelling confirmed a model that divided safety climate into three levels (informational exchange level; central affective level; and manifest level). Favourable perceptions of involvement, communication and policy awareness (informational exchange) act to improve perceived management commitment (central affective level), which in turn suppresses unsafe behaviour. In a similar manner, high levels of communication about health and safety improve perception of management commitment by acting through perceived supervisor competence.

To the developers' knowledge, the OSQ99 questionnaire has not been used other than in the JIP (HSE ref: Project 3661).
At all stages of development, the Robert Gordon University / Aberdeen University questionnaires have benefited from input from focus group discussions, review by industry Steering Groups, and rigorous piloting.

The developers intend to build up a norm database. At present, there is no indication of the expected size of such a database, which is dependent on how many organisations use the tool. One intention is to track the safety performance of individual offshore installations over time.

10 Access to the tool

Note: There are conditions attached to use of the OSQ99 questionnaire and future versions. Only preliminary details are available at present:

- use of the tool requires permission from Aberdeen University
- there will be no free use of the tool
- the tool will only be available for use with the direct involvement of an Aberdeen University Research and Industrial Services (AURIS) consultancy consortium, in parallel with the expertise of the original developers
- customisation of the tool for in-house use by any organisation will only be permitted with the assistance of Aberdeen University personnel or their chosen consultants
- an expected condition of use of the questionnaire is Aberdeen University obtaining access to all results for research purposes

At present, any company or individual wishing to make use of the questionnaire should make initial contact with either of the Aberdeen University personnel identified in 13. Contacts for further enquiries. In due course the consultancy consortium will provide their own promotional material and be the first point of contact.

11 Support available from the developer
To the developers' knowledge, the OSQ99 questionnaire has not yet been used other than in the JIP (HSE ref: Project 3661). All preparation, analyses and reporting have been undertaken by the researchers.
See 10. Access to the tool, for preliminary details of support expected to available in the future. At present, any requests for further information should be directed to either of the Aberdeen University personnel identified in 13. Contacts for further enquiries.

12 Listing of further information
- Offshore Research Focus, Issue No 123, October 1998, page 3.
- Offshore Research Focus, Issue No 125, August 1999, pp7-9.
- Spencer, R., Davies, F. and Payne, M. (1999) *Changing health & safety offshore - the agenda for the next 10 years.* Aberdeen. 22-24 July 1998. Conference Proceedings. Part 1b pp.20-22. HSE.

The final report from the JIP will be available in Autumn 2000. Details are as follows:
- Mearns, Kathryn; Flin, Rhona; Gordon, Rachael; O'Connor, Paul & Whitaker, Sean. *Factoring the Human into Safety: Translating Research into Practice. Executive Summary.* HSE, Report OTO 2000 036
- Mearns, Kathryn; Whitaker, Sean; Flin, Rhona; Gordon, Rachael & O'Connor, Paul. *Factoring the Human into Safety: Volume 1 - Benchmarking Human and Organisational Factors in Offshore Safety.* HSE, Report OTO 2000 061
- Gordon, Rachael; Mearns, Kathryn; Flin, Rhona; O'Connor, Paul & Whitaker, Sean. *Factoring the Human into Safety: Volume 2 - The Development and Evaluation of a Human Factors Accident and Near Miss Reporting Form for the Offshore Oil Industry.* HSE, Report OTO 2000 062
- Flin, Rhona; O'Connor, Paul; Mearns, Kathryn; Gordon, Rachael & Whitaker, Sean. *Factoring the Human into Safety: Volume 3 - Crew Resource Management Training for Offshore Operations.* HSE, Report OTO 2000 063

13 Contacts for further enquiries
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3.4 COMPUTERISED SAFETY CLIMATE QUESTIONNAIRE [CSCQ]

1 Title of tool Computerised Safety Climate Questionnaire[13] [14]
2 Developer Robert Gordon University[15]
3 Points of note Background In securing oil industry funding for the joint industry project (HSE ref: Project 3366) 'Human and organisational factors in offshore safety' it was agreed that a version of the OSQv1 questionnaire would be provided for administration by the offshore operating and contracting companies themselves. On completion of the project, one oil company provided additional funding to develop a simple Excel database to enable offshore installations to independently carry out safety climate surveys. The project produced a shortened questionnaire with guidelines for administration and a database to facilitate data entry and analysis by offshore staff. • Developed for use in the offshore oil and gas industry, with some wording tailored for drilling-related application. • Designed for organisations to use without the need to go to external bodies for assistance. • Available free to offshore oil and gas industry companies only. • 49 item questionnaire with 5 point response scale, plus 13 general information questions. [Estimated completion time - 20 to 30 minutes.] • User information provides brief, helpful advice in easy-to-understand language. • Enables benchmarking against 'North Sea' average scores drawn from previous research carried out at Robert Gordon University. • Lacks a sophisticated user interface, detailed user manual and other features associated with some commercial packages.
4 Overall aims of the tool • An original aim of the tool was to give offshore installations the capability to carry out safety climate surveys themselves, without the need to go to external bodies for assistance. • The tool provides companies with information about their current safety climate and may highlight areas of weakness and areas of strength. • If used periodically, the tool can be used to examine improvement of the safety climate over time. • Use of the tool allows benchmarking of individual rigs/facilities.
5 Nature of the tool The tool is a Microsoft Excel-based software package comprising: • a questionnaire • an analysis package • user information, including sections on how to operate the software and how to interpret the results obtained Note: This computerised package was developed with funding from an offshore operator for use in their drilling operations. It was not developed as a commercial software package and so - although functional - it lacks a sophisticated user interface and other features associated with some commercial packages. Questionnaire The questionnaire is available electronically but needs to be printed and completed in paper-based form. The questionnaire consists of those statements from the OSQv1 questionnaire that the Robert Gordon University / Aberdeen University research team concluded were the best predictors of the state of safety on offshore installations. The questionnaire has 49 items requiring answers on a five point Likert-type scale (ranging from *'Never carry out*

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[13] Third of three versions of the Aberdeen University Offshore Safety Climate Questionnaire included in the Summary Guide.

[14] Early development of the Offshore Safety Climate Questionnaire was carried out while the research team was based at Robert Gordon University.

[15] Development of the CSCQ was carried out by Mark Fleming at Robert Gordon University. Mark is now based at The Keil Centre, Edinburgh.

action' to *'Very often carry out action'* in relation to job, and *'Fully disagree'* to *'Fully agree'* in relation to safety attitudes).
There are also 13 questions that collect general information (including job title, whether employed by operating or contracting company, brief details of accident history etc). Completion should take about 20 to 30 minutes.

The questionnaire collects information on the following:
- General information
- Job (measuring self-reported risk taking behaviour)
- Safety attitudes (statements that combine together to form 5 factors or concepts and are taken as a measure of safety climate)

The 5 factors that 'Safety attitudes' responses contribute to are:
- Confidence in safety management
- Pressure for production
- Supervision and management
- Rules and regulations
- Safety on the installation

Data from the completed questionnaires is entered into the software package.

Analyses
A range of analyses can be run and displayed in graphical form. For example, the average scores for those with and without accident histories can be compared for each of the five factors and for risk taking behaviour. The user information text helps in interpreting results by:
- describing the meaning of each factor
- listing which statements make up each factor
- indicating the minimum and maximum score that can be obtained for each factor, and the meaning of high and low scores
- providing a North Sea average score for each factor (drawn from data previously collected during research carried out at Robert Gordon University)
- indicating what changes the user should be looking for in tracking performance over time to indicate an improvement in safety climate

6 Applicability to different industry sectors
This questionnaire has been developed specifically for use in the offshore oil and gas industry, with some wording tailored for use on drilling rigs. This could easily be adjusted for wider applicability offshore.

Although a minimum company or site size is not specified, it is important that there are sufficient individuals in each category (eg under each job title, under each employer) to ensure that confidentiality can be maintained.

The questionnaire could be adapted for use in other industry sectors but there are no current plans to do so.

7 Applicability to different types of employees
The questionnaire is designed to be applicable across the workforce. Questions are included relating to job title, whether an individual is in a supervisory role, and if they are employed by an operating or a contracting company.

8 Resources required
The software is available free to offshore companies, so no expenditure is required for purchase of the tool.

There will be internal expenditure for staff time in making any modifications to the questionnaire, completion by the workforce, input of results into the software, data analysis, and report production.

On-going expenditure will be needed for follow-up time in communicating results, taking things forward (including identifying issues and implementing improvement plans) via the use of steering committees and focus groups, repeating the survey at a later date to check on progress.

The software was developed originally in Excel 5 but has since been converted to operate in Excel 97. It is known that the software runs in a Windows 95 operating environment.

9 Use of the tool to date and validation
Refer to Table 3.2 for details of use of earlier versions of the tool and validation prior to development of the computerised tool.

Development of the computerised tool took place in 1996/97. This was funded by an oil company, the questionnaire being designed to enable use by drilling rigs on contract. The company has not continued to use the tool following completion of the project.

At the time, copies of the tool were provided to any organisations expressing interest. It is understood that the tool has not received widespread use. Reasons include: a lack of resources available to promote its use; staff changes at Robert Gordon University; the tool not being developed in a commercial format with a user-friendly front end, manual etc; potentially interested individuals and organisations may have joined the joint industry project (HSE ref: Project 3661) 'Factoring the human into safety: translating research into practice' instead.

Note: The existing tool has potential to be developed into a more user-friendly form, complete with user manual and more sophisticated reporting options.

10 Access to the tool
Any company or individual wishing to make use of the computerised tool should contact Mark Fleming at The Keil Centre (see 13. Contacts for further enquiries).

Restrictions on use
Only offshore oil and gas companies can obtain copies of the tool. No customisation of the questionnaire is allowed without prior permission.

11 Support available from the developer
Copies of the tool can be provided by Mark Fleming. There is no current facility for providing ongoing support to users.

12 Listing of further information
- Excel-based software package available from Mark Fleming.

13 Contacts for further enquiries
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3.5 LOUGHBOROUGH SAFETY CLIMATE ASSESSMENT TOOLKIT [LSCAT]

1 Title of tool
Safety Climate Assessment Toolkit
2 Developer
Loughborough University
3 Points of note
• Developed for use in the offshore oil and gas industry.
• Designed for use without external expert assistance, although some companies may need initial support.
• Available free from the developer, by post or via their Internet site.
• Questionnaire is one element of a 'multiple approach' toolkit.
• 43 item questionnaire with 5 point response scale. [Estimated completion time - 15 to 20 minutes.]
• Documentation provides advice on the feedback and safety climate improvement process, including developing action plans.
• Services available from the developer include providing safety climate profiles for companies and benchmarking against other organisations.
4 Overall aims of the tool
• The toolkit provides an assessment technique that includes a practical tool for the assessment of safety climate and also aids the promotion of a positive safety culture in the offshore environment.
• The tool is intended to be used periodically to examine changes in safety climate over time.
• Use of the tool allows identification of sub-cultures within organisations or on installations.
5 Nature of the tool
Toolkit
The toolkit makes use of several methods to assess safety climate. These are:
• attitude surveys and rating scales
• in-depth, informal discussions with individuals
• focus group meetings
• examination of written records and databases
• document analysis
Note: Only the questionnaire element is examined here.
Documentation
The user is provided with a document comprising:
• 'Part A: Safety Climate Assessment Process and Toolkit User Guide', giving an introduction to safety climate assessment and discussing in detail the stages involved in the process.
• 'Part B: Safety Climate Assessment Toolkit', containing tools that can be used as part of the assessment process.
Questionnaire
The full employee attitude survey questionnaire consists of 43 statements, all requiring answers on a five point Likert-type scale (ranging from *'Strongly agree'* to *'Strongly disagree'*). A final question allows respondents to give any other comments they may have about health and safety in their workplace. Individuals are also asked for their company name, department / team, and job function. Completion should take 15 to 20 minutes.
The questionnaire covers four broad areas :
• Organisational context
• Social environment
• Individual appreciation
• Work environment
The statements cover 9 dimensions or 'factors', which fit under the broad areas as follows:
Organisational context
• Management commitment - perceptions of management's overt commitment to health and safety issues
• Communication - the nature and efficiency of health and safety communication within the organisation

- Priority of safety - the relative status of health and safety issues within the organisation
- Safety rules and procedures - views on the efficacy and necessity of rules and procedures

Social environment

- Supportive environment - the nature of the social environment at work, and the support derived from it
- Involvement - the extent to which safety is a focus for everyone and all are involved

Individual appreciation

- Personal priorities and need for safety - the individual's view of their own health and safety management and need to feel safe
- Personal appreciation of risk - how individuals view the risk associated with work

Work environment

- Physical work environment - perceptions of the nature of the physical environment

Organisation specific factors - Attitudes to specific safety related systems and procedures (eg permit to work systems) may be included in the questionnaire as necessary.

The questionnaire is available in paper-based and CD ROM form and can also be accessed via the Loughborough University web site (see 10. Access to the tool). The documentation provides advice on distribution and collection of questionnaires, although it is recommended that decisions on the methods to be used are made at a local level.

Short form questionnaire
The developer advises that the full questionnaire provides a rich source of data, especially for examining responses to individual statements in detail and if dimensions are to be plotted. If limited time is available, or an interim assessment is to be conducted on a sample of the workforce, then a short form assessment can be used. This contains two of the items which best characterise each dimension of the questionnaire, a total of 18 items.

Analyses
Detailed instructions are provided to enable the user organisation to score the questionnaire data, calculate the average dimension scores and produce a safety climate profile in graphical form (eg a radar plot). Further data can be added to the profile from the results of focus groups and interviews (competence, shared values, co-operation, managing change, management style) and from results of direct and indirect observation (safe behaviours, accidents and incidents, systems compliance).

The documentation provides advice on the feedback and climate improvement processes, including brief details on developing action plans and a safety climate maintenance checklist.

Loughborough University can provide assistance in profiling the data gathered (see 11. Support from the developer).

6 Applicability to different industry sectors
The toolkit, and its associated user guide, have been developed in collaboration with oil industry personnel, specifically for use in offshore environments. They build on cultural concepts and frameworks from existing offshore organisations and allied industries.

The overall process could be applied in other industry sectors, subject to industry-specific modification. Attention would need to be paid to face validity of the questionnaire items and, as a result, the final structure might vary.

No minimum company size or overall sample size is specified, although the developers advise surveying at least 50% of the population under study, if possible. Where smaller numbers of individuals are involved - say, less than 40 people - it may be more useful to use the short form questionnaire as a prompt list for a face-to-face interview.

7 Applicability to different types of employees
The questionnaire has been designed to be applicable across the workforce. The introductory section asks for details of company, department / team and job function. The developers advise that to gain a complete picture of the current safety climate it will be necessary to get the views of employees from all levels and job/task areas in an organisation. This may also help to identify different problems in different areas.

8 Resources required

The toolkit can be downloaded free from the Internet (see 10. Access to the tool).

There will be internal expenditure for the project team to familiarise themselves with the current safety culture in their organisation and the related organisational 'drivers', training assessors to assist with the observation and interview elements of the toolkit, completion of the questionnaire by the workforce, data analysis and reporting. [Note: Some of the effort / expenditure relates to use of all facets of the toolkit, not solely the questionnaire element.]

On-going expenditure will be needed for follow-up time in communicating results, taking things forward (including identifying issues and implementing improvement plans) via the use of steering committees and focus groups, repeating the survey in the future to check on progress.

All the material required for an organisation to use the toolkit, analyse the results and start thinking about improvement actions is available free to the user. The user guide details the core competencies that individual users will need. It is possible that smaller organisations and/or those lacking staff with detailed health & safety and human factors backgrounds may require some external expert assistance when first making use of the toolkit.

9 Use of the tool to date and validation

The toolkit is the end product of a lengthy development process. In the 5 year period preceding the joint industry project (HSE ref: Project 3389) 'The measurement of safety climate in safety cases', the industry sponsors had carried out several safety attitude surveys in their own organisations. Safety attitude measures had also been used in other industrial sectors. Work in the project included development of an initial question bank, taking full account of the earlier work. A pilot questionnaire was completed by 60 offshore employees in 2 locations. A revised questionnaire was subsequently completed by 221 employees on 3 offshore installations. Finally, the complete toolkit was subjected to further testing in the offshore environment and found to provide meaningful climate indicators for the 2 organisations concerned.

Industry participants in the joint industry project were: Chevron UK, Chevron Gulf of Mexico (Ship Shoal/Eugene Island), Mobil North Sea and Oryx UK.

Since completion of the joint industry project, the developers have had about 10 requests for the toolkit and a further 10 enquiries. Two organisations have asked for limited support from the developers, both requesting comparative results (see 11. Support available from the developer). The developers are continuing to build a database of questionnaire responses. By January 2000, the database contained a total of about 600 cases, from 5 organisations.

Refinement and improvement of the tools will be part of an ongoing process and users should contact the developers if they require an update on any developments. It is intended that the structure and relationships within the toolkit will be re-examined when the database has grown to around 1000 cases.

10 Access to the tool

The Safety Climate Assessment Toolkit can be accessed, free of charge, on the Internet at:
http://www.lboro.ac.uk/departments/bs/safety/
The questionnaire form can be accessed directly at:
http://www.lboro.ac.uk/departments/ec/JIP/SAFESURV.HTM

The reader can browse through the user guide and toolkit on-line or download a hard copy using Adobe Acrobat.

Alternatively, a hard copy of the user guide and toolkit, plus CD ROM version, can be obtained by contacting the developers.

The development of the tools and processes are described in detail in the technical report 'Assessing Safety Culture in Offshore Environments'. Email Alistair Cheyne for details at: A.J.T.Cheyne@lboro.ac.uk

11 Support available from the developer

The overall toolkit utilises data from three separate, and independent, sources to give an overall 'measure' of the prevailing safety climate. The data are derived from: employee attitude surveys; face-to-face interviews and focus group discussions; structured observations. Each of these can be completed on-line and returned direct to the Loughborough research team. Once several sets of data have been returned to the research team they can produce a profile of the organisation. Email Alistair Cheyne for details at: A.J.T.Cheyne@lboro.ac.uk

A full profiling service is available from the Centre for Hazard and Risk Management at Loughborough University, where a database of comparative data will be held. This database will hold aggregated scores from a range of organisations that have already used the Safety Climate Assessment Toolkit. For further information, contact the Centre - Tel: 01509 222162.

Finally, the developer can provide mean scores on each of the dimensions, based on the database they hold. This service is offered free in return for the data collected by users being added to the database and is not subject to the developer being involved in the detailed profiling. Contact Alistair Cheyne for further information.

12 Listing of further information

- Web site location: http://www.lboro.ac.uk/departments/bs/safety/
- Cox, Sue and Cheyne, Alistair, (1998) *Assessing Safety Culture in Offshore Environments*, Loughborough University
- Cox, S.J. et al, *Safety Culture in Offshore Environments: Developing the Safety Climate Measurement Toolkit*, Paper at the International Conference on Safety Culture in the Energy Industries, University of Aberdeen. 22-24th September 1997

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3.6 QUEST SAFETY CLIMATE QUESTIONNAIRE [QSCQ]

1 Title of tool
Safety Climate Questionnaire
2 Developer
Quest Evaluations and Databases Ltd
3 Points of note
The joint industry project (JIP) (HSE ref: Project 3626) 'Safety and performance enhancement in drilling operations by human factors intervention (SPEDOHFI)' used a range of techniques to: apply human factors techniques in the assessment of behaviours, working practices and perceptions of safety; identify the root causes of problems and potential problems; set a baseline of human performance in the oil & gas industry; and derive a set of short- and long-term strategic activities that would ensure improvements in human factors. The Safety Climate Questionnaire was used in conjunction with other human factor tools to assess the different aspects of predicting human interaction within the work environment. • Developed for drilling-related use in the offshore oil & gas industry. • Modification to wording of some items would potentially allow use across the oil & gas industry and also in all sectors of safety critical industries. • Following initial use in conjunction with the developers, customers are given full access to the tool with the developers continuing to offer support as required. • The tool is completely stand alone, although it can be used in conjunction with other human factor tools. • 319 item questionnaire, in 12 sections, with 7 point response scale. [Estimated completion time - 45 to 60 minutes.] • For a shorter, more concentrated approach, surveys can use a restricted set of sections, eg focusing on 'Management' and 'Training'. • Use to date has been solely in the offshore oil & gas industry, involving 5 oil & gas companies in the UK sector and 3 companies in the USA. • A norm database of 93 records is held by the developers, with baseline results being available for comparison purposes. • Support offered by the developer includes: answering telephone queries; help in customisation of the tool; distribution and collection of questionnaires; analysis of data collected and benchmarking of results; report production, including recommendations; and training in use of the tool and data analysis.
4 Overall aims of the tool
• The questionnaire provides a method for measuring attitudes, values and beliefs of individual workers. It is comprehensive and searching, with the topics covered addressing major issues affecting work-related behaviour. • The tool can be used in the assessment of behaviours, working practices and perceptions of safety, identification of root causes of potential problems, and to define proposed industry norms for error potential on critical drilling activities together with norms for safety climate. • The tool allows the drilling industry as a whole, and individual companies, to identify where improvement effort needs to be focused. The results enable companies to benchmark how positive and effective their safety and work culture is. They also reveal how crews perceive safety, motivation, production and so on. The attitudes and perceptions disclosed indicate where changes need to be made. • Repeat use of the questionnaire acts as a climate indicator as well as allowing identification of differences where intervention has occurred.
5 Nature of the tool
Questionnaire The developers carried out a review of safety climate tools, literature, recent major incident investigations and techniques to determine factors affecting work safety and performance relevant to the oil & gas industry. This identified 88 factors as causing accidents, unwanted incidents, lost production time and near misses. These were grouped into 12 categories: • Safety priorities • Communication • Training • Environment • Individual • Procedures • Design of work / people

- Design of things / equipment
- Management / structural
- Investigation / evaluation
- Emergencies
- Maintenance

The questionnaire has 12 sections, one for each factor category, with a total of 319 items. All items require responses on a seven point Likert-type scale (ranging from *'Never'* to *'Always'*). The only additional information requested is job title. The developers advise that the questionnaire can be completed in about 45 minutes, although an hour should be allowed.

Analyses

The questionnaire responses have been analysed using the SPSS statistical package and Excel. In the JIP, for each of the 12 safety climate factors[16], a mean rating (ranging from *'1-poor'* to *7-good'*) was calculated. The mean value for each factor was found by summing each variable loaded onto the factor and dividing by the number of variables. By displaying company means for each factor it could be seen where there are general trends (means close together) and where there are company differences (wider distribution of means). Analyses were also run at a company level to examine the mean ratings for each item making up a factor, indicating which areas in each factor were perceived as failing the required goals.

Summary results show an organisation's performance, as perceived by its employees, across a range of dimensions considered crucial to its continued success. This provides a general barometer to the 'health' of the organisation. More diagnostic information is found at the level of the 12 category sub-scales. This is useful in addressing particular problems, such as communication difficulties between departments, and identifying subcultures within the organisation. Use of the questionnaire enables organisations to identify the areas of greatest concern, where focusing resources is likely to provide maximum benefit.

6 Applicability to different industry sectors

The questionnaire was developed specifically for offshore drilling-related use. It could be further refined or shortened to suit individual company's requirements. However, the developer believes that its comprehensiveness is one of its strengths; there is value in a very detailed questionnaire being used to diagnose the root causes of problems. In an initial data collection phase, a company may require an overall view that can be benchmarked against the 'industry norm'. Thereafter, the questionnaire length could be reduced for follow-up surveys (see later).

For wider industry distribution, some items may benefit from use of more general job titles. The developers advise that the current factor structure be adopted as it is generic in human factor terms and comparisons with the industry norm would still apply. Thus the questionnaire is equally applicable and appropriate to all sectors of safety critical industries. If a shorter, more concentrated approach is required, industries or companies can chose to leave out certain categories (ie sections) in the tool. This will not affect the benchmarking capabilities of the other categories. For example, a company may choose to focus on just 'Management' and 'Training' or perhaps use all categories except 'Incident analysis', 'Emergencies' and 'Maintenance'.

No minimum company size is specified, although the developers recommend that a minimum of 12 completed questionnaires be obtained from any individual company.

7 Applicability to different types of employees

The questionnaire has been designed to be applicable across all levels of an organisation. During analysis in the JIP, responses were classified as 'management' and 'non-management' according to the job title given. For future use, the developers advise splitting respondents into 3 categories to separate workforce, supervisor and manager responses.

8 Resources required

The developers retain copyright of the Safety Climate Questionnaire and initial access to the tool is conditional on use of the developers' services. The support offered is detailed in 11. Support available from the developer. The costs associated with this external support will vary depending on, for example, whether the questionnaire is to be

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[16] The factor analysis statistical technique has <u>not</u> been employed to determine factors. The factor labels are identical to the section titles of the questionnaire.

modified. If used in its present form there will not be a need for piloting.

Internal expenditure will be required for staff time in questionnaire completion.

On-going expenditure will be needed for follow-up time in communicating results, taking things forward (including identifying issues and implementing improvement plans) via the use of steering committees and focus groups, and repeating the survey at regular intervals to check on progress.

Following initial use of the tool in conjunction with the developers, customers will have full access to the tool, and be able to call on as much or as little support from the developers as they require. The developers believe that for the questionnaire to be useful it must be seen by employees who complete it as being completely confidential and anonymous, otherwise much of the usefulness derived from honest answers is lost. So, the developers recommend that they themselves should be called on to cover the data collection and analysis aspects of surveys.

The developers also recommend that both application of the tool and carrying out the analyses should be undertaken by qualified psychologists, as this is in line with arguments for professionalism put forward in the British Psychological Society (BPS) guidance on use of psychometric instruments.

9 Use of the tool to date and validation

To date, the tool has been used solely in the offshore oil & gas industry. In the UK, 5 oil & gas companies and the HSE participated in the JIP. In the USA, the tool has been used with 3 companies. Experience has been built up over a 2-3 year period.

The questionnaire was originally piloted on 14 personnel attending a drilling school. In the main JIP survey, 93 completed questionnaires (76 from five oil & gas companies, 17 from a drilling school) were used to create a baseline of the industry norm. For each of the 12 safety climate factors, a mean rating was calculated. Contributing companies were provided with their own mean results from each section of the questionnaire for benchmarking purposes. More widely, all users to date have had their results benchmarked.

Overlap of root causes identified from use of the questionnaire and from Focus Group discussions has confirmed confidence in the data collected. The general trends in the data among the 9 groups of participants have also confirmed validity. The questionnaire itself has been checked for construct validity (ie the items capture the qualities and traits that they were designed to measure) and for comprehensiveness.

The norm database of 93 records, obtained from 6 companies, is held by the developers. The baseline results from the database are available for comparison purposes.

10 Access to the tool

Any company or individual wishing to make use of the questionnaire should contact Quest Evaluations and Databases Ltd. (see 13. Contacts for further enquiries).

The developers are considering placement of the questionnaire on a web site, which would allow emailing of results from drilling rigs.

11 Support available from the developer

The developers retain copyright of the Safety Climate Questionnaire and initial access to the tool requires use of the developers' services. The support offered includes:
- providing answers to telephone queries
- help in customisation of the tool
- distribution and collection of the questionnaires
- analysis of data collected and benchmarking of results
- production of a report and recommendations
- training in the use of the tool and data analysis

The JIP participants and other existing customers all have full use of the tool but the developers continue to offer any of the above support, particularly data collection and analysis to ensure confidentiality.

In use of the questionnaire to date, all preparation, analyses and reporting has been undertaken by the developers. They have indicated willingness to customise or shorten, distribute, collect and/or analyse and benchmark the results from annual use of the questionnaire.

12 Listing of further information

- Stanton, Neville A. & Wilson, Jennifer, A. (2000) Human factors: Step change improvements in effectiveness and safety, *Drilling Contractor Magazine*, January/February 2000

Note: The results of the JIP remain confidential to participants until end 2000.

13 Contacts for further enquiries
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Quest Evaluations & Databases Ltd
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Landford
Wiltshire
SP5 2AU   Tel: 01794 390 950   Fax: 01794 390 996   Email: quest@globalnet.co.uk

4 Other Sources of Information

This section provides brief details of some other publications that may be of interest.

4.1 HSE PUBLICATIONS

Safety Culture: A clear guide to the HSE publications which you are most likely to need **HSE 1999**
- A free HSE booklet that focuses on some of the most important and common areas of risk and points the reader in the direction of the publications that help address the problems.
- Publications are grouped under: Counting the costs of accidents, Accidents do happen; You can do it yourself; Managing to cope; Building a safer future, Your good health; Good offices; Maintaining safety in the workplace; Dangerous cargo; Equip yourself for safety; Dealing with dangerous substances; Safety - reading the signs.

Managing health and safety - Five steps to success **INDG275 HSE 1998**
- Free HSE booklet that summarises the key messages of the 2nd edition of *Successful health and safety management* (HSG65), which retains the well received framework for managing health and safety set out in earlier editions, as well as providing improved guidance on:
- Planning for health and safety
- Accident and incident investigation
- Health and safety auditing
- The booklet also explains what is involved in good management of health and safety and the cost of getting it wrong.
- This publication is aimed at directors and managers and should also help supervisors, owners of small firms, employee representatives, insurance companies, trade associations and other key players.

Successful health and safety management **2nd edition   HSG65   HSE 1997**
- A practical guide for directors, managers with health and safety responsibilities, health and safety professionals and employee representatives who want to improve health and safety in their organisations.
- The publication:
- describes the principles and management practices which provide the basis of effective health and safety management
- sets out the issues which need to be addressed
- can be used for developing improvement programmes, self-audit or self-assessment
- The elements of an effective health and safety management system - policy, organising, planning and implementing, measuring performance, auditing and reviewing performance - are described.

Reducing error and influencing behaviour **HSG48   HSE 1999**
- Guidance aimed at managers with health and safety responsibilities, health and safety professionals and employee safety representatives.
- The message is that proper consideration of human factors is a key ingredient of effective health and safety management. The guidance provides practical help on how to tackle some of the important issues.

- The publication:
- explains how human error and behaviour can impact on health and safety
- shows how human behaviour and other factors in the workplace can affect the physical and mental health of workers
- provides practical ideas on what can be done to identify, assess and control risks arising from the human factor
- includes illustrative case studies to show how other organisations have tackled different human problems at work

4.2 STEP CHANGE IN SAFETY

Behavioural Issues Task Group Interim Report **Step Change in Safety   1999**
- The Step Change in Safety Behavioural Issues Task Group is working to produce a practical guide to the tools and techniques that are available for addressing behavioural issues affecting safety in the oil and gas industry.
- The full deliverables from the group are expected to be produced during January 2000, but this brief report was prepared in November 1999 to present the emerging findings of the group and make information available to assist with the planning of health and safety programmes for 2000.
- The report is available to download free, as a Word 97 document, from the Step Change web site at: http://www.oil-gas-safety.org.uk

Safety Culture Maturity Model **The Keil Centre   1999**
- This report describes the development of a draft Safety Culture Maturity Model (SCMM) and the process involved in developing the model.
- The model has been developed to assist organisations in the offshore oil and gas industry with:
- Establishing their current level of safety culture maturity
- Identifying the actions required to improve the culture
- Once approved, the final version of the report will be available to download free, as a Word 97 document, from the Step Change web site at: http://www.oil-gas-safety.org.uk
- For further information, the reader is advised to contact Mark Fleming at The Keil Centre, Edinburgh (Email: Mark@keilcentre.co.uk).

4.3 OTHER

Approaches to Safety Culture Enhancement **Vectra Technologies Limited 1998**
- This report was originally produced for the Nuclear Industry Management Committee. As its contents are of relevance across industry sectors, permission has been obtained for it to be made openly available.
- The report is written primarily for human factors specialists and senior managers, but the contents are in a form which will be of use to those lower down the organisational hierarchy.
- A structured approach to safety culture enhancement is described, based on the tools and techniques available at the time of the project. All tools/techniques that were identified by Vectra were reviewed and entries provide information under the headings:
- Summary
- When to use
- Strengths / weaknesses
- Resources
- For more information
- Information is also provided on Safety Management Systems and on organisational cultures.

Best Practice in Employee Research **The Market Research Society 1996**

- Concise guide that can be downloaded free of charge from The Market Research Society's web site [http://www.mrs.org.uk].
- Contains useful summary information on:
- the applications and benefits of employee research (eg managing response to change, enabling prioritisation of management action)
- best practice in employee research (eg questionnaire design, questionnaire completion, reporting of results)

5 References

Health and Safety Executive. (1997). *Health and safety climate survey tool - Information pack* MISC097 HSE Books.

Health and Safety Executive. (1997). HSE press release E234:97 - 5 December 1997 *'Let employers log on to health and safety through HSE's new computer software'*

Health and Safety Executive. (1998). *Health and safety climate survey tool - Process guidelines* (part of tool package) ISBN 071761462X HSE Books.

Advisory Committee on the Safety of Nuclear Installations (ACSNI). (1993). Human Factors Study Group Third Report: *Organising for safety.* HSE Books

Confederation of British Industry (CBI). (1990). *Developing a safety culture* ISBN 0852013612

Turner, B.A. (1991). *The development of a safety culture*. Chemical and Industry.

Step Change in Safety. (1999). *Behavioural Issues Task Group Interim Report*

Fleming, M. (1999). *Safety Culture Maturity Model.* The Keil Centre.

Health and Safety Executive. (1999). *Safety Culture: A clear guide to the HSE publications which you are most likely to need*

Health and Safety Executive. (1998). *Managing health and safety - Five steps to success* INDG275 ISBN 0-7176-1565-0 HSE Books

Health and Safety Executive. (1997). *Successful health and safety management* 2nd edition   HSG65 ISBN 0-7176-1276-7 HSE Books

Health and Safety Executive. (1999). *Reducing error and influencing behaviour*   HSG48 ISBN 0-7176-2452-8 HSE Books

Vectra Technologies Limited (1998). *Approaches to Safety Culture Enhancement* Final Report HF/GNSR/5024

The Market Research Society (1996). *Best Practice in Employee Research*

PART 2

DETAILED ITEM COMPARISON

1 Introduction

1.1 BACKGROUND

Part 1 of the Guide has compared the six questionnaire tools in their entirety. Part 2 reports on a more detailed item-by-item comparison, then goes on to identify, where possible, which safety climate tools and/or specific questionnaire items appear to be most helpful in establishing the current state of maturity of an organisation or installation[17].

The detailed item-by-item comparison is examined first. There are several reasons why the HSE are interested in this in-depth comparison. These include:

- a desire to reduce unnecessary surveying of the workforce. Although organisations may be keen to make use of survey instruments, there has been a tendency for there to be inadequate forward planning, insufficient attention given to selection of appropriate questionnaire items, and a lack of consideration of what will be done with the results.
- wanting to facilitate comparisons of outcomes from different surveys (eg within the same company but at different times, between different companies, making use of historic as well as current and future data collection). At present, it is difficult if not impossible to make such comparisons unless the same survey tool was used in all cases.
- enabling organisations to make use of the large quantities of material collected in the past from different survey instruments used at different times.
- recent and future mergers in the oil and gas industry increasing the need to find a way of amalgamating and making use of data from different original sources.
- a goal of developing a facility to search a database of questionnaire items, to allow selection of those for use in a particular situation, and to construct a 'fit for purpose' valid survey instrument.
- discouraging the developers of safety climate survey tools from developing additional items and new instruments: the emphasis needs to be on making best use of what exists already.

1.2 COMPARISON PROCESS

The comparison process comprised the following steps:
- The six questionnaires were labelled A to F, as shown below.

Code	Questionnaire	Developer
A	Health and Safety Climate Survey Tool	Health & Safety Executive
B	Offshore Safety Questionnaire [OSQv1]	Robert Gordon University/Aberdeen University
C	Offshore Safety Climate Questionnaire [OSQ99]	Aberdeen University
D	Computerised Safety Climate Questionnaire [CSCQ]	Robert Gordon University
E	Loughborough Safety Climate Assessment Toolkit [LSCAT]	Loughborough University
F	Quest Safety Climate Questionnaire [QSCQ]	Quest Evaluations and Databases Ltd

- All items were given unique identifiers (A1 to A74, B1 to B176 etc). This included: items that

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[17] Part 1, Section 1.6 outlines the five stages of organisational maturity as defined in the draft Safety Culture Maturity Model (Fleming, 1999).

are only completed by certain individuals (eg supervisors only); optional items; and items where free text responses are allowed.

- The range of *'General Information'* and *'Accident history'* items employed was examined.

- A comparison matrix and scoring system was developed (see Section 1.3 Comparison matrix and scoring system) and each questionnaire was taken and examined item by item (with the exception of the *'General Information'/'Accident History'* items). For each item, those items in the other 5 questionnaires that it mapped against were identified.

- Following completion of the matrices, similar and identical items were grouped together. As the groupings developed, suitable labels were selected. This was not restricted to the original set of factor titles where alternative labels were considered to be more appropriate.

- For each grouping, a suggested subset of items for inclusion in a **Core Safety Climate Item Set** was identified. These are the items considered most suited - by the Guide's authors - to investigation of the key aspects of the prevailing safety climate of an offshore installation.

- Also, specialised sets of items were identified. These could be of relevance if certain additional topics are of particular interest to the potential user (eg maintenance, planning for emergencies, or the work environment). Alternatively, they could allow a more in-depth examination of some of the core aspects.

During the comparison process, attention was given to whether some questionnaires tend to contribute more items of certain types than the other questionnaires, and if there are specific features that distinguish the better items from the other items.

1.3 COMPARISON MATRIX AND SCORING SYSTEM

An example page from a comparison matrix is shown on page 4. For each item, the following information was recorded:

Item identifier
Unique identifer. (eg *B121*)

Item text
Text taken from questionnaire. (eg *People are reluctant to report accidents.*)

Scoring
As defined in questionnaire. (eg *5 predefined options, 1 Fully disagree to 5 Fully agree*)

Section title
As defined in questionnaire. (*Safety culture - safety and accident prevention at work*)
Note: Four questionnaires include section titles, two questionnaires do not.

Factor
Factor that item loads on to, as specified by developer. (eg *Safety attitudes - speaking up about safety*)
Note: Factors are identified for five questionnaires. Factor analysis has <u>not</u> been carried out for the other questionnaire. In this case, section title is used as the factor label, in line with the developer's practice.

Factor loading
Extent to which item loads on to the factor. (eg *0.72*)
Factor analysis is a statistical method by which abstract concepts, such as attitudes and risk perception, can be investigated. It assumes that a set of variables combine to form an underlying dimension (factor), which is determined by analysis of the correlation of individuals' responses on these variable. The value can range from 0 to 1, the higher the factor loading the greater the input of the item to describing the factor.
Note: Factor loadings have been made available for three questionnaires.

<div style="border:1px solid black; padding:10px;">

<u>Maps against item</u>

Listing of all items that chosen item maps against and extent of similarity. On a four point scale:

-2 (identical - reverse) (*eg 'People are reluctant to report accidents' vs. 'People are willing to report accidents'*)

-1 (similar - reverse)   (*eg 'People are reluctant to report accidents' vs. 'Accidents which happen here are always reported'*)

+1 (similar)   (*eg 'People are reluctant to report accidents' vs. 'Accidents which happen here are not always reported'*)

+2 (identical)   (*eg 'People are reluctant to report accidents' vs. 'People are reluctant to report accidents'*)

<u>Maps against scoring</u>

Measure of similarity of scoring between mapped items on a three point scale.

+2 (identical)   (*eg '1 Fully disagree' to '5 Fully agree' vs. '1 Fully disagree' to '5 Fully agree' <u>or</u> '1 Fully agree' to '5 Fully disagree'*)

+1 (similar)   (*eg '1 Fully disagree' to '5 Fully agree' vs. '1 Never' to '7 Always' <u>or</u> '1 Always' to '7 Never'*)

 0 (no match)   (*eg 'True/False' vs. '1 I am not involved at all', '2 I am informed about the matter beforehand', '3 I can give my opinion', 4'My opinion is taken into account', '5 I take part in the decision making with equal weight, '6 I decide on my own'*)

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Example completed page from comparison matrix

Questionnaire (ref.) and title: Offshore Safety Questionnaire [OSQv1]							
Item id.	Item text	Scoring	Section title	Factor	Factor loading	Maps against item	Maps against scoring
B120	Job insecurity means that people on this installation like to keep information to themselves	5 predefined options 1 Fully disagree to 5 Fully agree	Safety culture - safety and accident prevention at work	Safety attitudes - speaking up about safety	0.50	A54 (+1) C50(+1) D35(+1) D38(+2) None in E F142(+1)	A54(+2) C50(+2) D35(+2) D38(+2) F142(+1)
B121	People are reluctant to report accidents	5 predefined options 1 Fully disagree to 5 Fully agree	Safety culture - safety and accident prevention at work	Safety attitudes - speaking up about safety	0.72	A8(-1) C46(-2) D33(+2) None in E F273(-1) F274(-1) F275(-1)	A8(+2) C46(+2) D33(+2) F273(+1) F274(+1) F275(+1)
B122	Safety is taken seriously on this installation, it is not just a cosmetic exercise	5 predefined options 1 Fully disagree to 5 Fully agree	Safety culture - safety and accident prevention at work	Safety attitudes - OIM commitment to safety	0.52	A30(-1) A34(-1) C53(+1) D58(+2) None in E None in F	A30(+2) A34(+2) C53(+2) D58(+2)
B123	My supervisors care about safety, more than the average worker	5 predefined options 1 Fully disagree to 5 Fully agree	Safety culture - safety and accident prevention at work	Safety attitudes - supervisor commitment to safety	0.64	A67(+1) A68(-1) None in C D45(+2) None in E None in F	A67(+2) A68(+2) D45(+2)

2 Categorisation of Survey Items

The six questionnaires under review vary considerably in terms of total number of items, numbers of general information and accident history items, and whether there are items that are only to be answered by certain categories of respondent. These details are summarised below.

Questionnaire	'Main' items	General information items	Accident history items	TOTAL
A	72 (*4 are for supervisor/workforce completion only, 1 is free response to gather suggestions*)	9 (max.)	None	81 (max)
B	153 (*15 are for contractor completion only, 1 is free response to gather suggestions*)	12	11	176
C	80 (*2 are free response to gather suggestions, 19 are trialling a 'short form' questionnaire*)	10	None	90
D	49	10	3	62
E	44 (*1 is free response to gather suggestions*)	3	None	47
F	319	1	None	320
TOTAL	717	45	14	776 (max.)

The total number of distinct items found in the six questionnaires is considerably less than the total of 776 above. This is largely explained by some identical items (or identical - reverse) appearing in consecutive questionnaires produced by the same developers.

2.1 CATEGORISATION PROCESS - KEY CONSIDERATIONS

A range of issues that need to be considered when categorising items are described below.

2.1.1 Original purpose of questionnaires

Each questionnaire was designed with specific aims in mind. These are reflected in the differing structures and types of items included. Questionnaire A is the only questionnaire that was designed to be generic. It can be used across industry sectors, onshore and offshore, within and outside the UK. As a consequence, there are no oil & gas industry specific items (eg no reference to OIMs) and there is not the emphasis on the 'pressure for production' that is seen in the other questionnaires. In contrast, Questionnaire B was developed primarily as a tool for collecting information for use in a research project. Questionnaires C and D have developed from this original version, which is no longer used in its entirety by the developer. Although developed during a research project, Questionnaire E was designed for much wider use in the offshore sector. Questionnaire F is by far the longest of the survey instruments. It was designed specifically for completion by those involved in drilling operations; a number of items would require revision to be applicable more widely to offshore activities. The number of items in each section means that each topic (eg training) is explored in far greater depth than in the other questionnaires.

2.1.2 Scoring systems for responses

Examination of the different scoring systems used for questionnaire responses showed that most items are (or could easily be) framed to require responses on a 5 point scale (*'1 Strongly disagree to 5 Strongly agree' or vice versa*). The remainder tend to require responses on a 5 point scale (*'1 Very dissatisfied to 5 Very satisfied' or vice versa*). The Guide's authors do not believe that use of a scale with further discrimination (eg 7 point) brings any additional benefit.

2.1.3 Ambiguous wording

There are a small number of items where the wording is considered to be ambiguous and open to differing interpretation, the apparent meaning often depending on the context set by neighbouring items. Those items considered to be ambiguous by the Guide's authors are highlighted in the relevant sections.

2.1.4 Criteria for selecting core items

In selecting items for the suggested **Core Safety Climate Item Set**, a number of aspects were considered. This included:

- clarity of wording - ambiguously worded items were not selected
- context - the way in which questions are interpreted may be affected by the neighbouring questions (the context)
- alternative versions - being able to offer alternative versions of an item (similar and/or reverse)
- range of levels - selected items should range from 'overview' items related to the various issues/topics through to those examining more specific aspects
- detailed items - items at a very detailed level were to be excluded from the core item set

2.2 SELECTED ITEM GROUPINGS AND SUBGROUPINGS

The item groupings and subgroupings are listed below. The labels given to the groupings are self-explanatory, although where there are subgroupings this gives further indication of the breadth of coverage of the overall groupings.

Training and competence
Effectiveness of training
Training coverage/ content
Availability of training
Training priorities
Personal competence
Competence of others
Assessing competence

Job security and Job satisfaction

Pressure for production
Pressure to put production before safety
Workload/ work pressure
Perception of management's position

Communications
Communications in the workplace
Communications with superiors
Communications between different employee groups
Communications at shift handover/ crew change
Communications relating to accidents/ incidents
Communications systems

Perceptions of personal involvement in health and safety
Personal involvement and influence in improving safety
Decision making
Involvement in work planning

Accidents/ incidents/ near misses (*not including personal accident history*)
Accident causation
Accident/ incident/ near miss reporting
Accident/ incident/ near miss investigation
Follow-on actions from accident/ incident/ near miss investigation
Perception of management's attitudes

Perception of organisational / management commitment to health and safety - General
Overall commitment
Management's willingness to act and speed of implementation
Encouraging employee participation
Availability of resources
Management attitude to rule breaking
Trust and support

Perception of organisational / management commitment to health and safety - Specific
Specific - OIM
Specific - Supervisor
Specific - Other

Merits of the health and safety procedures/ instruction/ rules
Fitness for purpose
Understanding of rules, procedures etc
Permit to work

Rule breaking
Personal rule breaking
Rule breaking - workforce in general
Production pressure
Staffing levels

Workforce view on state of safety/culture
Overall attitude to safety
Impact of work environment
Personal safety
'No blame' culture

Assessment of safety levels
Generally:
How safe do you feel from being injured by ..... ?
How safe do you feel when .....?
How satisfied do you feel when .....?
How satisfied are you with .....?

Further item sets for detailed examination of specific topics
Planning for emergencies
Maintenance
Task allocation and human factor design
Work pressures
Work environment
Individual competence, capacities, health and skills
Procedures
Safety priorities
Management/ structural (including decision making & team working)
Various

Free response items to gather workforce opinions and suggestions for improvement
General information items
Accident history items

3 Item Groupings

As shown in Section 2.2, there are 16 overall groupings. These are:
- General information (s3.1)
- Training and competence   (s3.2)
- Job security and Job satisfaction (s3.3)
- Pressure for production (s3.4)
- Communications   (s3.5)
- Perceptions of personal involvement in health and safety (s3.6)
- Accidents/ incidents/ near misses (s3.7)
- Perception of organisational / management commitment to health and safety - General (s3.8)
- Perception of organisational / management commitment to health and safety - Specific (s3.9)
- Merits of the health and safety procedures/ instruction/ rules (s3.10)
- Rule breaking (s3.11)
- Workforce view on state of safety/culture (s3.12)
- Assessment of safety levels (s3.13)
- Further item sets for detailed examination of specific topics (s3.14)
- Free response items to gather workforce opinions and suggestions for improvement (s3.15)
- Accident history (s3.16)

Where relevant, the following information is provided for each grouping in turn:
1. List of subgroupings
2. For each subgrouping, a list of items contained.
 - Where an item appears in more than one questionnaire this is indicated.
 - Generally, items are only included in one grouping. Where they are included in two groupings this is shown.
3. A listing of those items suggested for inclusion in a **Core Safety Climate Item Set**, along with suggested scoring scale. For ease of reference, these items are also highlighted (***in bold italics***) in the subgrouping lists.
4. Summary comments, including where further related items are located.

In their source questionnaire, those items marked * are to be answered only by certain types of respondents:
- Questionnaire A - supervisors and workforce only
- Questionnaire B - those employed by contracting companies

3.1 GENERAL INFORMATION ITEMS

The Questionnaires vary considerably in the number and types of 'General Information' questions included. Typically, the items below are included. Sometimes free text responses are required but more frequently there is a pre-defined set of responses available.

Typical items	Free text / Typical pre-defined sets of responses
Date	Free text
Department	Free text/ user organisation may define Department names
Name of installation/rig	Free text
Sex	Male/ Female

Age	Free text
Category of work	eg Production, Admin/management, Drilling, Maintenance, Operations, Deck crew, Construction, Catering, Other (describe)
Job type/function/title	eg 'Manager', 'Supervisor', 'Worker' eg Admin/management, Maintenance, Catering, Drilling/ well services, Medic, Deck crew, Production, Other (describe)
Employer type	eg Operating company, Contracting company
Shift	eg All days, All nights, 24 hour call, 1/2 days/ 1/2 nights, Other (describe)
Rotation	eg 2on 2off, 1on1off, 2on 3off, 3on 3off, Other (describe)
Day of trip	Free text
Supervisor?	Yes / No
Member of core crew on this installation/rig?	Yes / No
Number of years worked on current installation	Less than 1 year, 1-5 years, 6-10 years, more than 10 years
Number of years worked offshore	Free text
Number of installations worked on	eg 1-5, 6-10, more than 10

The information collected from 'General Information' questions is used to help explain differences in responses to items in the main body of the questionnaire. For example, responses to items might differ depending on whether the respondent is a member of the frontline workforce, a supervisor or a manager. Similarly, there may be interest in comparing responses from contractor employees with those from operating company employees. Such analyses are facilitated by items having a pre-defined, restricted set of possible responses - see typical 'employer type' labels above - or where categories can be applied later - eg responses to 'number of years worked offshore' could be grouped into *'less than 2, 2-5, 5-10, 10-15, over 15 years'*. In using restricted response sets there can be a danger of excluding valid responses. This is can be overcome by using an '*Other - Describe*' category.

3.2 TRAINING AND COMPETENCE

The *Training and competence* grouping is subdivided into:
- Effectiveness of training
- Training coverage/content
- Availability of training
- Training priorities
- Personal competence
- Competence of others
- Assessing competence

3.2.1 Allocation of items

Effectiveness of training [18 items]

People here do not remember much of the health and safety training which applies to their job. A23

Effective training is provided for safety practices (e.g. permit to work systems, emergency evacuation) F57

Effective training is provided on skills specific to individual tasks and equipment. F58

On the job training is effectively carried out. F79

Training includes effective skills practice for normal operations. F62

Training includes effective skills practice for emergency operations. F63

Training gives drilling crews a clear understanding of those aspects of the task critical to safety. F59

Training gives drilling crews a clear understanding of those aspects of the task critical to well integrity. F60

Training gives drilling crews a clear understanding of those aspects of the task critical to maintaining production. F61

Drilling crews have the opportunity to comment on the effectiveness of training F77

Refresher training effectively updates individual's knowledge and skill. F68

How satisfied/ dissatisfied are you with safety training and competence? C81

How satisfied do you feel with regard to safety instructions/training? B78
How satisfied do you feel with regard to emergency response training? B95 C28
How satisfied do you feel with regard to first aid training? B85
Training is carried out by individuals with relevant operational experience. F65
Training is carried out by individuals with relevant training skills. F66
Training is consistent from one trainer to another. F67

Training coverage/content [14 items]
The training I had covered all the health and safety risks associated with the work for which I am responsible. A40
Training courses and programs are based on clear training objectives. F54
Task analysis or job analysis is used as a basis for developing training. F55
Training courses reflect current procedures and practices. F56
The consequences of not following procedures are identified in training. F64
Training is updated to reflect changes in equipment, procedures and practices. F70
Training is updated to reflect findings of incident investigations. F71
Training procedures are designed to enhance employee confidence and self-esteem. F83
Personnel are given communication skills training. F84
Managers and supervisors receive training methods to provide positive motivation and employee support. F85
Training is given for group decision making. F86
Training is given to all drilling crew members in structured decision making. F87
Drilling crews are trained to recognise stress in themselves and others. F88
Training provision in stress management is adequate. F89

Availability of training [10 items]
This operating company sends sufficient contractors on safety training courses. B156*
Training appropriate to job demands is provided. F53
Refresher training is carried out at appropriate intervals. F69
Adequate job training is provided for individuals before they work independently. F72
Adequate safety training is provided for individuals before they work independently. F73
Drilling crews are given adequate instruction in supervising the work of others for whom they may have some responsibility. F78
Training new drilling crew members on-the-job can be accommodated within normal work schedules. F81
There is sufficient 'hands on' training for new crew members. F80
Adequate training is received for dealing with Operator personnel in difficult situations. F82 *(drilling-related item)*
Relevant personnel are specifically trained in the use of emergency PPE. F215

Training priorities [4 items]
Management place a low priority on health and safety training. A53 *Also in 'Perception of organisational/management commitment to health and safety - General' grouping*
A documented training development system exists. F50
A systematic method is used to identify priorities for training (eg in terms of safety implications). F51
Drilling crews are consulted to establish their training needs. F52

Personal competence [6 items]
I fully understand the health and safety procedures/instructions/rules associated with my job. A66
I understand the safety rules for my job. E14
Sometimes I am uncertain what to do to ensure health and safety in the work for which I am responsible. A46
I fully understand the health and safety risks associated with the work for which I am responsible. A17
I am clear about what my responsibilities are for health and safety. A31 E37
The drilling crews understand the nature of all the hazards they are likely to encounter during their work. F135

Competence of others [6 items]
Employees are often confused about what they are supposed to do. B24
Some people here have a poor understanding of the risks associated with their work. A58
Supervisors are good at detecting unsafe behaviour. A5
Supervisors here are not very effective at ensuring health and safety. A10
How satisfied do you feel with regard to competence of OIM and Emergency Response Teams? B96
How satisfied do you feel with regard to competency of personnel for multi-skilling tasks? C35

Assessing competence [3 items]
Methods of assessing the attainment of required levels of competence are specified. F74
Following training, personnel are monitored to verify that they demonstrate the required safety and operational skills. F75
Training sessions include tests to verify knowledge. F76

3.2.2 Core items

Table 1 details *Training and competence* items that are suggested for inclusion in a **Core Safety Climate Item Set**.

Table 1: Key items relating to *Training and competence*

Code	Text	Scoring
1.1	I am clear about what my responsibilities are for health and safety. A31 E37	A
1.2	I fully understand the health and safety risks associated with the work for which I am responsible. A17	A
1.3	I fully understand the health and safety procedures/instructions/rules associated with my job. A66	A
1.4	Sometimes I am uncertain what to do to ensure health and safety in the work for which I am responsible. A46	A
1.5	The training I had covered all the health and safety risks associated with the work for which I am responsible. A40	A
1.6	Training has given me a clear understanding of all those aspects of my job which are critical to safety. F59 [adapted]	A
1.7	People here are consulted to establish their training needs. F52 [adapted]	A
1.8	How satisfied do you feel with regard to competence of (*named key roles/tasks*) B96/C35 [adapted]	B

Scoring[18]:
A - 5 point scale from 1 Strongly disagree through to 5 Strongly agree.
B - 5 point scale from 1 Very dissatisfied to 5 Very satisfied.

3.2.3 Summary

The majority of items (42 out of a total of 61) originated from the questionnaire developed for drilling-related use in the offshore oil and gas industry. As indicated earlier, in many cases, items that relate specifically to drilling activities could easily be amended, either to relate to an alternative specific activity or to be phrased in more general terms.

No core items have been identified in subgroupings *Availability of training* or *Assessing competence*. A single item selected from the *Training coverage/content* subgrouping [*The training I had covered all the health and safety risks associated with the work for which I am responsible. A40*] is considered to address the issue of availability sufficiently at the core item set level. The issue of competence assessment is most likely to be addressed in a survey that incorporates a particular focus on *Training and competence*. Inclusion of four *Personal competence* items should give a good indication of whether there are outstanding health & safety training needs to be addressed. Two *Competence of others* items have contributed to formation of a generic item that can be tailored to encompass specific roles/tasks.

A few additional items relating to *Training and Competence* can be found in the *Individual competence, capacities, health and skills* grouping (see Section 3.14.7).

3.3 JOB SECURITY AND JOB SATISFACTION

It would not be unexpected for job security to have an impact on job satisfaction and so these item sets form the two subgroups of the *Job security and job satisfaction* grouping.

3.3.1 Allocation of items

> *Job security* [10 items]
> **My job security is good. B110**
> **I am worried about my job security. A54**
> If you say too much about safety they might fire you. B142 C50 D35
> Job insecurity means that people on this installation like to keep information to themselves. B120 D38
> During the past year, how often were you in a situation where you faced job loss or payoff? B149

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[18] Scoring of item as used in the source questionnaire.

How likely is it that during the next couple of years you will lose your present job with your employer? B150
The drilling team members are confident about their future with the company. F142
Senior management don't care about the negative effect that job uncertainty has on safety. B163*
Management cares about the negative effect that job uncertainty has on safety. C57
Some operating company managers think that we should be grateful to have a job and should not complain about safety. B152*

Job satisfaction [13 items]
My job is boring and repetitive. A6
Drilling crews are appropriately paid for the work they do. F116
Drilling crew members have appropriate status in this organisation. F117
The drilling crews identify strongly with the company. F118
Motivation among the drilling crew is very high. F119
The quality of work life is high. F120
Morale is good. F121
The work undertaken by drilling crews at this rig site is interesting. F122
Workers are exposed to a wide range of activities. F123
Drilling crews have a high level of job satisfaction. F124
Drilling crews are given time and support towards the application of newly acquired skills. F242
Drilling crews generally feel challenged and motivated by their work tasks. F243
Job tasks are expanded to offset the impact of job challenges taken away through automation. F244

3.3.2 Core items

Table 2 details *Job security and Job satisfaction* items that are suggested for inclusion in a **Core Safety Climate Item Set**.

Table 2: Key items relating to *Job security and job satisfaction*

Code	Text	Scoring
2.1	My job security is good. B110 I am worried about my job security. A54 I am confident about my future with the company. F142 [adapted]	A
2.2	Senior management don't care about the negative effect that job uncertainty has on safety. B163* Management cares about the negative effect that job uncertainty has on safety. C57	A
2.3	My job is boring and repetitive. A6	A
2.4	The workforce generally feel challenged and motivated by their work tasks. F243 [adapted]	A
2.5	Motivation among the workforce is high. F119 [adapted]	A
2.6	The workforce have a high level of job satisfaction. F124 [adapted]	A

Scoring:
A - 5 point scale from 1 Strongly disagree through to 5 Strongly agree.

3.3.3 Summary

The *Job security and Job satisfaction* grouping contains 23 items. Only one questionnaire (Questionnaire E) did not contribute any items. The questionnaire that was developed for drilling-related use provided 12 of the 13 items directly related to job satisfaction. As a consequence, four of the items suggested for the core item set have been adapted so that they apply more generally. Core items B1 and B2 provide three and two alternative forms respectively.

It is suggested that the item below is ambiguous in its present form and would benefit from rephrasing.

Job insecurity means that people on this installation like to keep information to themselves. B120 D38

A positive response should indicate that the respondent feels that people on their installation keep information to themselves and that this is due to job insecurity. It is possible that positive responses could also be given where people keep information to themselves but not because of job insecurity. For example, their workload may have increased so that it is hard to find the time to pass information around.

3.4 PRESSURE FOR PRODUCTION

The *Pressure for production* grouping is subdivided into:
- Pressure to put production before safety
- Workload/work pressure
- Perception of management's position

3.4.1 Allocation of items

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Pressure to put production before safety *[9 items]*
There is sometimes pressure to put production before safety on this installation. B126 D39
There is never any pressure to put production before safety on this installation/rig. C40
Productivity is usually seen as more important than health and safety. A18
Sometimes it is necessary to ignore safety regulations to keep production going. B136 C37 D27 *Also in 'Rule breaking' grouping*
Sometimes it is necessary to depart from safety requirements for production's sake. E38 *Also in 'Rule breaking' grouping*
Safety rules are adhered to even under production pressure. F12 *Also in 'Rule breaking' grouping*
Operational targets often conflict with safety measures. E30
Rules and instructions relating to personal safety sometimes make it difficult to keep up with production targets. B117
Cost cutting on this installation has not reduced safety. B129

Workload/work pressure [15 items]
There is constant pressure to keep working. B13
There always seems to be an urgency about everything. B15
There is no time pressure. B21
People cannot afford to relax. B17
People are rushing jobs on this installation. B97 D52
There are always deadlines to be met. B27
Sometimes I am not given enough time to get the job done safely. E10
You can take it easy and still get your work done. B25
Nobody works too hard. B19
It is very hard to keep up with your work load. B23
Workload is reasonably well balanced. F177
Staff shortages sometimes result in rules being broken to get the job done. B101 D31 *Also in 'Rule breaking' grouping*
Low manning levels sometimes result in rules being broken to get the job done. C38 *Also in 'Rule breaking' grouping*
There are always enough people available to get the job done according to the health and safety procedures/instructions/rules. A44
There are always enough people available to get the job done safely. E40

Perception of management's position [8 items]
Nowadays, managers are more interested in safety than production. B111
Management considers safety to be equally as important as production. E43
The company would stop us working due to safety concerns, even if it meant losing money. C59 *Also in 'Perception of organisational/management commitment to health and safety - General' grouping*
My company will stop work due to safety concerns, even if it means they are going to lose money. B164* *Also in 'Perception of organisational/management commitment to health and safety - General' grouping*
When the operating companies start to lose money, unsafe work practices get overlooked. B140 D37
A consistent message that production pressures must not compromise safety is communicated by management to the drilling crew. F11
Drilling crews are given support by management even if following safety rules affects operational activities. F13 *Also in 'Perception of organisational/management commitment to health and safety - General' grouping*
When senior management are assessing drilling teams performance, a good safety record is as important as achieving operational targets. F16

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3.4.2 Core items

Table 3 details *Pressure for production* items that are suggested for inclusion in a **Core Safety Climate Item Set**.

Table 3: Key items relating to *Pressure for production*

Code	Text	Scoring
3.1	There is sometimes pressure to put production before safety on this installation. B126 D39 There is never any pressure to put production before safety on this installation/rig. C40	A
3.2	Sometimes it is necessary to ignore safety regulations to keep production going. B136 C37 D27 Safety rules are adhered to even under production pressure. F12	A
3.3	There is constant pressure to keep working. B13 You can take it easy and still get your work done. B25	A
3.4	Low manning levels sometimes result in rules being broken to get the job done. C38 There are always enough people available to get the job done safely. E40	A
3.5	Nowadays, managers are more interested in safety than production. B111	A
3.6	The company would stop us working due to safety concerns, even if it meant losing money. C59	A
3.7	A consistent message that production pressures must not compromise safety is communicated by management to the workforce. F11 [adapted]	A

Scoring:
A - 5 point scale from 1 Strongly disagree through to 5 Strongly agree.

3.4.3 Summary

All of the questionnaires contribute items relating to the potential conflict between productivity and safety. However, of the 32 items, only one originates from the generic questionnaire developed for use in any industry sector. This is not surprising given that a perceived conflict between production versus safety has been particularly prevalent in the offshore oil & gas industry. It is not unexpected that 3 of the 8 items related to the perceived management position are also found in the *Perception of organisational/management commitment to health and safety - General* grouping. Three items concerning adhering to/ignoring safety rules are also found in the *Rule breaking* grouping, as are two items relating to the effects of staffing levels on adherence to the rules.

Each of the subgroupings contributes suggested core items, many offering two alternative forms - one framed in a negative and one in a positive manner.

Further detailed items relating to *Workload/work pressure* can be found in the *Work pressures* grouping (see Section 3.14.5).

It is suggested that the item below is ambiguous in its present form and would benefit from rephrasing.

Cost cutting on this installation has not reduced safety. B129

A negative response should indicate that the respondent feels that there has been cost cutting on their installation and that this has reduced safety. It is possible that negative responses could also be given where people feel that safety has reduced but do not necessarily feel this is as a direct result of cost cutting. For example, they may feel the contributory cause is the increase in multi-skilling.

3.5 COMMUNICATIONS

The *Communications* grouping is subdivided into:
- Communications in the workplace
- Communications with superiors
- Communications between different employee groups
- Communications at shift handover/crew change
- Communications relating to accidents/incidents
- Communications systems

3.5.1 Allocation of items

Communication in the workplace [19 items]

I am satisfied with the way I am kept informed about what takes place on this installation. B31 C11

There is good communication here about safety issues which affect me. E13

There is poor communication about safety issues that may affect me. C18

There is poor communication about health issues that may affect me. C16

On this installation or rig, how satisfied / dissatisfied are you with communication about safety issues? C77

There are good communications here about health and safety issues. A7

I am always informed about the outcome of meetings which address health and safety. A21

The details of assigned jobs are generally explained to employees. B22

Work groups frequently meet to exchange operational information. F41

There are adequate opportunities for drilling crew members to become familiar with each others work. F40

Shifts hold regular briefing meetings involving all drilling crew members to discuss current work targets and plans. F131

Relationships between groups and teams are non-competitive. F42

The authority structure of the organisation facilitates individuals and groups working together. F44

People are tolerant of differences in personal working styles. F45

Problem solving is carried out as a team activity. F47

Effective communications within shifts are unaffected by individual work locations. F48

Written communications are checked for clarity. F43

An explicit policy exists which emphasises the importance of communication to minimise errors. F31

An effective system exists for communicating the nature of rig and well changes and their implications for safety to the drilling crew. F33

Communication with superiors [10 items]

My line manager/supervisor does not always inform me of current concerns and issues. E31

Safety information is always brought to my attention by my line manager/supervisor. E34 *Also in 'Perception of organisational/ management commitment to health and safety - specific' grouping*

My immediate boss often talks to me about health and safety. A51

My supervisor gives me clear instructions. C13 B35

Aspects of company policy are effectively communicated to individuals. F130

Workers can easily approach managers of any level if they feel they have a problem. F134

Management are open about planned changes. F249

Meetings take place where causes of operational problems are openly discussed between drill crew and management. F32

Lines of communication to senior management are unaffected by time of day etc. F49

Drilling crews are regularly informed about their contribution to the overall results of the organisation. F227

Communications between different employee groups [8 items]

There is poor communication between operator and contractor staff. C12

How satisfied/ dissatisfied are you with communication between operator and contractor staff? C89

Effective communication systems exist in general between Operator and Contractor service personnel. F35

There is good communication between maintenance and operating staff. B32

Effective communication systems exist in general between Drilling Contractor and Service Personnel. F36

Maintenance communicates formally with the drilling crew at the start and finish of maintenance tasks. F317

Communication between maintenance and the drilling crew leads to a smooth hand over and hand back of equipment. F318

How satisfied/dissatisfied are you with communication between the installation/rig and the beach? C90

Communication at shift handover/crew change [6 items]

There is good communication at shift handover. C17

How satisfied/ dissatisfied are you with communication at shift handover? C83

There is good communication between crew changes. B34

There is poor communication between crew changes. C15

Indicate the extent to which you are satisfied/dissatisfied with communication between crew changes. C88

An adequate system exists for transmitting critical information regarding the state of the well during shift change over. F34

There is a standard procedure for shift changeover to ensure the oncoming shift are aware of the status of the well. F158

Communications relating to accidents/incidents [3 items]

The crew is always given feedback on incidents that occur on this installation. B131 D56 *Also in 'Accidents/ incidents/ near misses' grouping*

Information on recurring causes of incidents are effectively disseminated to all appropriate personnel. F258 *Also in 'Accidents/ incidents/ near misses' grouping*

Please indicate the extent to which you are satisfied/dissatisfied with feedback from incidents. C87

Communication systems [3 items]

| The telephone system is reliable. F37 |
| The radio communication system is reliable. F38 |
| The information from the rig instrumentation system is satisfactory. F39 |

3.5.2 Core items

Table 4 details *Communications* items that are suggested for inclusion in a **Core Safety Climate Item Set**.

Table 4: Key items relating to *Communications*

Code	Text	Scoring
4.1	I am satisfied with the way I am kept informed about what takes place on this installation. B31 C11	A
4.2	There is good communication here about safety issues which affect me. E13	A
	There is poor communication about safety issues that may affect me. C18	
4.3	I am always informed about the outcome of meetings which address health and safety. A21	A
4.4	My line manager/supervisor does not always inform me of current concerns and issues. E31	A
4.5	Safety information is always brought to my attention by my line manager/supervisor. E34	A
4.6	There is poor communication between operator and contractor staff. C12	A
	How satisfied/ dissatisfied are you with communication between operator and contractor staff? C89	B
4.7	There is good communication between (*employee group*) and (*employee group*) staff. B32 [adapted]	A
4.8	How satisfied/dissatisfied are you with communication between the installation/rig and the beach? C90	B
4.9	There is good communication at shift handover. C17	A
	How satisfied/ dissatisfied are you with communication at shift handover? C83	B
4.10	There is good communication between crew changes. B34	A
	There is poor communication between crew changes. C15	
4.11	The crew is always given feedback on accidents/incidents that occur on this installation. B131 D56 [adapted]	A
4.12	Information on recurring causes of accidents/incidents is effectively disseminated to all appropriate personnel. F258 [adapted]	A

Scoring:

A - 5 point scale from 1 Strongly disagree through to 5 Strongly agree.

B - 5 point scale from 1 Very dissatisfied to 5 Very satisfied.

3.5.3 Summary

All of the questionnaires contribute items to the *Communications* grouping, although one questionnaire (Questionnaire D) only contributes a single item to the total of 50 *Communications* items. Two of the items on communications relating to accidents/incidents are also found in the *Accidents/ incidents/ near misses* grouping. One item on communication with superiors is also found in the *Perception of organisational/ management commitment to health and safety - specific* grouping.

Communications systems is the only subgrouping that does not contribute suggested core items, reflecting the fact that it only includes 3 detailed equipment-related items.

3.6 PERCEPTIONS OF PERSONAL INVOLVEMENT IN HEALTH & SAFETY

The *Perceptions of personal involvement in health and safety* grouping is subdivided into:
- Personal involvement and influence in improving safety
- Decision making
- Involvement in work planning

3.6.1 Allocation of items

Personal involvement and influence in improving safety [11 items]
I am involved in informing management of important safety issues. E11
I am involved in safety issues at work. E16
I can influence health and safety performance here. E32
There is nothing I can do to further improve health and safety here. A35
I feel involved when health and safety procedures / instructions / rules are developed or reviewed. A16
I am never involved in the ongoing review of safety. E42
Indicate the extent to which you are satisfied/dissatisfied with workforce involvement in safety on your installation/rig. C76
Is there enough workforce involvement in safety on this installation/rig? C21
Would you like to be more involved in safety? C22
If 'yes' to QC22, please write below how you would like to become involved. C23
Contractors are not consulted about safety issues. B153*

Decision making [6 items]
When decisions are being made about safety issues which may affect you, how involved do you feel? C20
I am consulted before decisions are made. B33
I have a fair opportunity of influencing the decisions to be made by my superiors. B36
If there is a disagreement, the person with the most authority makes the decision. F230
If there is a disagreement, the most forceful argument is chosen. F231
If there is a disagreement within the drilling team when a decision on well control has to be made, the decision is put to a vote. F229

Involvement in work planning[6 items]
In planning and decision making about your work activities, how involved do you feel? C19
Drilling crews are actively involved in planning for changes to their work processes. F226
Drilling crews are involved in decisions about well control situations. F228
Drilling crews actively participate in defining their own roles. F114
Drilling crews have scope to use their preferred approach to work providing that this is within the safety rules. F179
Drilling crews feel that they have a reasonable degree of control over their work. F225

3.6.2 Core items

Table 5 details *Perceptions of personal involvement in health and safety* items that are suggested for inclusion in a **Core Safety Climate Item Set**.

Table 5: Key items relating to *Perceptions of personal involvement in health and safety*

Code	Text	Scoring
5.1	I am involved in informing management of important safety issues. E11	A
5.2	I can influence health and safety performance here. E32	A
5.3	I feel involved when health and safety procedures / instructions / rules are developed or reviewed. A16	A
5.4	Indicate the extent to which you are satisfied/dissatisfied with workforce involvement in safety on your installation/rig. C76	B
5.5	When decisions are being made about safety issues which may affect you, how involved do you feel? C20	C
5.6	I have a fair opportunity of influencing the decisions to be made by my superiors. B36	A
5.7	In planning and decision making about your work activities, how involved do you feel? C19	C

Scoring:
A - 5 point scale from 1 Strongly disagree through to 5 Strongly agree.
B - 5 point scale from 1 Very dissatisfied to 5 Very satisfied.
C - 5 point scale from 1 Not involved at all to 5 Fully involved+   + Different scale to that used in the source Questionnaire.

3.6.3 Summary

All except one of the questionnaires (Questionnaire D) contribute items to the *Perceptions of personal involvement in health and safety* grouping, with there being a total of 23 items. Each of the subgroupings contributes suggested core items.

It is suggested that the following item is ambiguous in its present form and would benefit from rewording.

There is nothing I can do to further improve health and safety here. A35

A positive response indicates that the respondent feels that there is nothing they can do to further improve health and safety in their workplace. This may mean that they feel they lack the power, influence, or ability to have an input to improving health and safety. Alternatively, they may feel that the existing level of health and safety is high and does not require improvement.

3.7 ACCIDENTS / INCIDENTS / NEAR MISSES

The *Accidents/incidents/near misses* grouping is subdivided into:
- Accident causation
- Accident/incident/near miss reporting
- Accident/incident/near miss investigation
- Follow-on actions from accident/incident/ near miss investigation
- Perception of management's attitudes

Personal accident history is <u>not</u> included in this grouping.

3.7.1 Allocation of items

Accident causation [4 items]

When incidents occur, factors outside the control of the individuals involved (e.g. training, procedures, communications, job) are taken fully into account. F263

Members of investigation teams are trained to identify true root causes rather than blame human error. F264

The investigation system considers management and policy influences on the causes of incidents. F265

People who cause accidents here are not held sufficiently accountable for their actions. A39

Accident/incident/near miss reporting [8 items]

Minor accidents cause so much hassle they are often ignored. B112 C55 D36

The (my) company only records accidents because it has to. B161* C54

Accidents which happen here are always reported. A8 *Also in 'Workforce view on state of safety/ culture' grouping*

People are willing to report accidents. C46 Also in 'Workforce view on state of safety/ culture' grouping

People are reluctant to report accidents. B121 D33 Also in 'Workforce view on state of safety/ culture' grouping

Near misses are always reported. A13 *Also in 'Workforce view on state of safety/ culture' grouping*

People are willing to report near misses. C41 Also in 'Workforce view on state of safety/ culture' grouping

People are reluctant to report near misses. B141 D34 Also in 'Workforce view on state of safety/ culture' grouping

Accident/incident/near miss investigation [9 items]

Accident investigations are mainly used to identify who is to blame. A11

Accident investigation prevents accidents recurring. B102

Near misses are investigated. F259

There is written documentation which specifies a systematic method for establishing the human root causes of incidents. F260

The system for analysing root causes is comprehensive. F261

The investigation system is regularly reviewed and updated to ensure that it is achieving its objectives. F266

Senior management give active and visible support to the incident investigation system. F269

Incident investigations include a formal assessment of the workload experienced by key personnel during emergency response. F292

Incident investigations include a formal assessment of the quality of the decisions made by key personnel F293

Follow-on actions from accident/incident/near miss investigation [7 items]

Information on recurring causes of incidents are effectively disseminated to all appropriate personnel. F258 Also in 'Communications' grouping

The crew is always given feedback on incidents that occur on this installation. B131 D56 Also in 'Communications' grouping

Feedback from accidents and abnormal situations are used to update procedures. F161

Feedback from near misses is used to update procedures. F162

How satisfied do you feel with regard to follow-up and measures taken after injuries and accidents have taken place? B79 C24

There are clear and well documented procedures for developing specific remedial actions on the basis of identified causes. F267

Remedial actions are monitored to verify their effectiveness. F268

Perception of management's attitudes [2 items]

Management only bother to look at health and safety after there has been an accident. A22

Management acts only after accidents have occurred. E22

3.7.2 Core items

Table 6 details *Accidents/ incidents/ near misses* items that are suggested for inclusion in a **Core Safety Climate Item Set**.

Table 6: Key items relating to *Accidents/ incidents/ near misses*

Code	Text	Scoring
6.1	Members of investigation teams are trained to identify true root causes rather than blame human error. F264	A
6.2	The investigation system considers management and policy influences on the causes of incidents. F265	A
6.3	People who cause accidents here are not held sufficiently accountable for their actions. A39	A
6.4	People are willing to report accidents. C46 People are reluctant to report accidents. B121 D33	A
6.5	People are willing to report near misses. C41 People are reluctant to report near misses. B141 D34	A
6.6	Accident investigations are mainly used to identify who is to blame. A11	A
6.7	Accident investigation prevents accidents recurring. B102	A
6.8	Information on recurring causes of incidents are effectively disseminated to all appropriate personnel. F258	A
6.9	The crew is always given feedback on incidents that occur on this installation. B131 D56	A
6.10	How satisfied do you feel with regard to follow-up and measures taken after injuries and accidents have taken place? B79 C24	B
6.11	Management acts only after accidents have occurred. E22	A

Scoring:
A - 5 point scale from 1 Strongly disagree through to 5 Strongly agree.
B - 5 point scale from 1 Very dissatisfied to 5 Very satisfied.

3.7.3 Summary

All of the questionnaires contribute items to the *Accidents/ incidents/ near misses* grouping, although of the 30 items, only one originates from the Questionnaire E. Two of the 7 items concerning follow-on actions which relate to providing feedback to the workforce are also found in the *Communications* grouping. Six of the 8 items relating to willingness to report accidents/ incidents/ near misses are also found in the *Workforce view on state of safety/ culture* grouping.

Each of the subgroupings in the *Accidents/ incidents/ near misses* grouping contributes suggested core items.

Further items from Questionnaire E that relate to an individual's views on the likelihood of their involvement in accidents in the workplace can be found in the subgrouping titled 'Personal safety' in the *Workforce view on state of safety/culture* grouping.

3.8 PERCEPTION OF ORGANISATIONAL/ MANAGEMENT COMMITMENT TO HEALTH & SAFETY - GENERAL

There are a large number of items related to the perception of commitment of the organisation and/or management to health and safety. In broad terms, these can be split into items related to specific job roles (see '- Specific' grouping) and those that apply to the organisation or management more generally. The *Perception of organisational/management commitment to health and safety - General* grouping is subdivided into:
- Overall commitment
- Management's willingness to act and speed of implementation
- Encouraging employee participation
- Availability of resources
- Management attitude to rule breaking

- Trust and support

3.8.1 Allocation of items

Overall commitment [14 items]
There is commitment from the top, forcing through safety. B159*
Senior management take health and safety seriously. A26
Management clearly considers the safety of employees of great importance. E8
How satisfied/ dissatisfied are you with your company's commitment to safety? C72
The company really cares about the health and safety of the people who work here. A45
My company will stop work due to safety concerns, even if it means they are going to lose money. B164* *Also in 'Pressure for production' grouping*
The company would stop us working due to safety concerns, even if it meant losing money. C59 *Also in 'Pressure for production' grouping*
(I feel that the) management (on this installation) are concerned about my general welfare. B148 D47
Drilling crews are given support by management even if following safety rules affects operational activities. F13 *Also in 'Pressure for production' grouping*
My company is more interested in having a good safety record than the safety of the workers. B160*
My company is more safety orientated than other contracting companies. B162*
I believe that safety issues are not assigned a high priority. E23
Management place a low priority on health and safety training. A53 *Also in 'Training and competence' grouping*

Management's willingness to act and speed of implementation [11 items]
Ideas from the suggestion scheme are acted upon by management. F222
Management acts decisively when a safety concern is raised. E12
Corrective action is always taken when management is told about unsafe practices. E29
Suggestions to improve health and safety are seldom acted upon. A12
Management listens to safety concerns, but nothing ever gets done. B115 D54
My management listens to safety concerns but that is as far as it goes. B158*
Output from participation activities is used to make changes which have a direct impact upon reducing errors. F220
The time it takes before safety improvements are implemented is too long. B105 D61
Management always acts quickly over health and safety concerns. A20
Safety improvements are implemented within a reasonable period of time. C52
In my workplace management acts quickly to correct safety problems. E36

Encouraging employee participation [18 items]
Employees are not encouraged to raise safety concerns. E25
I am strongly encouraged to report unsafe conditions. E18
How satisfied/ dissatisfied are you with being able to report concerns? C80
The company shows interest in my views on health and safety. A60
The company encourages suggestions on how to improve health and safety. A33
There is a suggestion scheme with rewards for safety issues. F221
Where suggestions are denied, an explanation is given by the management. F223
People who work here are not recognised for working safely. A62
I do not receive praise for working safely. E28
I get praised for working safely. C14
Indicate the extent to which you are satisfied/dissatisfied with praise and rewards for working safely. C84
Personnel are actively encouraged to participate in initiatives which can improve safety. F15
Participation policies give real power to individuals to affect decisions which affect their working conditions. F224
Company policies maximise the active participation of personnel in achieving safety. F219
Workers are encouraged to share any ideas they may have which will contribute to improving the quality of the work environment. F132
Management operates an open door policy on safety issues. E4
Drilling crews are consulted on the design of the shift system. F252
Drilling crews are involved in developing the investigation system. F262

Availability of resources [5 items]
Sufficient resources are available for health and safety here. A56
Good proposals on how to improve safety are often stopped if they cost too much. B139
My company is good at providing safety equipment. B155*
I cannot always get the equipment I need to do the job safely. E46
People can always get the equipment which is needed to work to the health and safety procedures/instructions/rules. A43

Management attitude to rule breaking [3 items]
Management sometimes turn a blind eye to health and safety procedures/instructions/rules being broken. A19

> In my workplace management turn a blind eye to safety issues. E19
> Action is seldom taken against people who break health and safety procedures/instructions/rules. A37
>
> *Trust and support [4 items]*
> ***Management trust the drilling crew in this organisation. F137***
> ***The drilling teams trust the management in this organisation. F136***
> Top management support drilling crews. F138
> ***The company looks after its drilling crews. F141***

3.8.2 Core items

Table 7 details *Perception of organisational/management commitment to health and safety - General* items that are suggested for inclusion in a **Core Safety Climate Item Set**.

Table 7: Key items relating to *Perception of organisational/management commitment to health & safety - General*

Code	Text	Scoring
7.1	The company really cares about the health and safety of the people who work here. A45	A
7.2	The company would stop us working due to safety concerns, even if it meant losing money. C59	A
7.3	(I feel that the) management (on this installation) are concerned about my general welfare. B148 D47	A
7.4	Management place a low priority on health and safety training. A53	A
7.5	Management acts decisively when a safety concern is raised. E12 Corrective action is always taken when management is told about unsafe practices. E29 Management listens to safety concerns, but nothing ever gets done. B115 D54	A
7.6	The time it takes before safety improvements are implemented is too long. B105 D61 Safety improvements are implemented within a reasonable period of time. C52	A
7.7	Employees are not encouraged to raise safety concerns. E25	A
7.8	I am strongly encouraged to report unsafe conditions. E18	A
7.9	The company encourages suggestions on how to improve health and safety. A33	A
7.10	Indicate the extent to which you are satisfied/dissatisfied with praise and rewards for working safely. C84	B
7.11	Personnel are actively encouraged to participate in initiatives which can improve safety. F15	A
7.12	Sufficient resources are available for health and safety here. A56	A
7.13	I cannot always get the equipment I need to do the job safely. E46 People can always get the equipment which is needed to work to the health and safety procedures/ instructions/ rules. A43	A
7.14	Management sometimes turn a blind eye to health and safety procedures/instructions/rules being broken. A19	A
7.15	Management trust the (*employees?/workforce?/job group?*) in this organisation. F137 [adapted] The (*employees?/workforce?/job group?*) trust the management in this organisation. F136 [adapted]	A
7.16	The company looks after its (*employees?/workforce?/job group?*). F141 [adapted]	A

Scoring:
A - 5 point scale from 1 Strongly disagree through to 5 Strongly agree.
B - 5 point scale from 1 Very dissatisfied to 5 Very satisfied.

3.8.3 Summary

All of the questionnaires contribute items to the *Perception of organisational/management commitment to health and safety - General* grouping, with there being a total of 55 items. Two items concerning the company's willingness to stop work due to safety concerns are also found in the *Pressure for production*, and one item concerning the level of priority placed on health and safety training is also found in the *Training and competence* grouping.

Each of the subgroupings in the *Perception of organisational/management commitment to health and safety - General* grouping contributes suggested core items. Three of the drilling-related items have been adapted to form generic items that can be tailored to address specific employee groups or to the workforce generally.

3.9 PERCEPTION OF ORGANISATIONAL/ MANAGEMENT COMMITMENT TO HEALTH & SAFETY - SPECIFIC

There are a large number of items related to the perception of the organisation and/or management's commitment to health and safety. These can be broadly split into items related to specific job roles and those that apply to the organisation or management more generally (see '-General' grouping). The *Perception of organisational/management commitment to health and safety -Specific* grouping is subdivided into:

- Specific - OIM
- Specific - Supervisor
- Specific - Other

For the purposes of the comparison exercise, the phrase 'my immediate boss' has been interpreted as 'supervisor'. Similarly, the terms 'line manager/supervisor' and 'manager/supervisor' are interpreted as 'supervisor'.

3.9.1 Allocation of items

Specific - OIM [8 items]
My OIM is genuinely concerned about the health and safety of people on this installation/rig. C53
My OIM acts promptly on safety concerns. C60
The OIM is always on the lookout for safety rule violations. B134 D57
My OIM turns a blind eye when the rules are bent. C58
The OIM is too busy to be involved in minor safety issues. B146 D41
How satisfied do you feel with regard to OIM's 'walkabouts'? B81 C26
I trust my OIM. C44
Indicate the extent to which you are satisfied/dissatisfied with your OIM's commitment to safety. C73

Specific - Supervisor [21 items]
Safety information is always brought to my attention by my line manager/supervisor. E34 *Also in 'Communications' grouping*
My immediate boss is receptive to ideas on how to improve health and safety. A64
My immediate boss would be very helpful if I asked for advice on health and safety matters. A59
I don't think my immediate boss does enough to ensure health and safety. A68
Supervisors devote sufficient effort to health and safety here. A67
Indicate the extent to which you are satisfied/dissatisfied with your supervisor's commitment to safety. C74
In my workplace managers/supervisors show interest in my safety. E41
My supervisors care about safety, more than the average worker. B123 D45
Managers and supervisors express concern if safety procedures are not adhered to. E45
Supervisors sometimes turn a blind eye to people who are not working to the health and safety procedures/ instructions/ rules. A69
My supervisor sometimes turns a blind eye when safety rules are broken. B145 D29
Supervisors seldom check that people are working safely. A32
My supervisor would approve of me taking shortcuts to get a job done quickly. C56
My supervisors aren't scared of taking the blame for their errors. B114
My supervisor is not scared of taking blame for his errors. D42
My supervisor is reluctant to take the blame for his/her errors. C42
How satisfied do you feel with regard to supervisor 'walkabouts'? C31
I trust my supervisor(s). B104 C47 D43
Supervisors are sensitive to the personal problems of members of their work group. B133
My supervisor is sensitive to the personal problems of members of the work group. D44
My supervisor has good 'people skills'. C51

Specific - Other [9 items]
(My) management onshore are genuinely concerned about workers' safety. B124 B157* D46

The Safety Manager only appears when there is a problem. B128

The rig manager only appears when there is a problem. D51

> ***Safety reps do a pretty good job. B138 D53***
> How satisfied do you feel with regard to the support given to safety reps in order to do their job properly? C29
> ***How satisfied/dissatisfied are you with the support safety reps get to do their job properly? C85***
>
> The safety officer gets tucked away in an office when a dangerous job is being done. B109
> ***How satisfied do you feel with regard to the Safety Officer? B94***
>
> ***The health and safety committee makes an important contribution to health and safety here. A48***

3.9.2 Core items

Table 8 details *Perception of organisational/management commitment to health and safety - Specific* items that are suggested for inclusion in a **Core Safety Climate Item Set**.

Table 8: Key items relating to *Perception of organisational/management commitment to health & safety - Specific*

Code	Text	Scoring
8.1	My OIM is genuinely concerned about the health and safety of people on this installation/rig. C53	A
8.2	The OIM is always on the lookout for safety rule violations. B134 D57 My OIM turns a blind eye when the rules are bent. C58	A
8.3	I trust my OIM. C44	A
8.4	Safety information is always brought to my attention by my line manager/supervisor. E34	A
8.5	I don't think my immediate boss does enough to ensure health and safety. A68 Supervisors devote sufficient effort to health and safety here. A67	A
8.6	Managers and supervisors express concern if safety procedures are not adhered to. E45	A
8.7	My supervisor sometimes turns a blind eye when safety rules are broken. B145 D29	A
8.8	I trust my supervisor(s). B104 C47 D43	A
8.9	(My) management onshore are genuinely concerned about workers' safety. B124 B157* D46	A
8.10	The (*Safety manager/Rig manager/Other role*) only appears when there is a problem. B128 D51 [adapted]	A
8.11	Safety reps do a pretty good job. B138 D53	A
8.12	How satisfied/dissatisfied are you with the support safety reps get to do their job properly? C85	B
8.13	How satisfied do you feel with regard to the (*Safety officer/Other role*)? B94 [adapted]	B
8.14	The health and safety committee makes an important contribution to health and safety here. A48	A

Scoring:
A - 5 point scale from 1 Strongly disagree through to 5 Strongly agree.
B - 5 point scale from 1 Very dissatisfied to 5 Very satisfied.

3.9.3 Summary

All of the questionnaires, except for Questionnaire F, contribute items to the *Perception of organisational/ management commitment to health and safety - Specific* grouping, with there being a total of 38 items. One item relating to supervisors bringing safety information to workers' attention is also found in the *Communications* grouping.

Each of the subgroupings contributes suggested core items. Two items have been adapted to form generic items that can be tailored to address specific job roles.

3.10 MERITS OF THE HEALTH & SAFETY PROCEDURES/ INSTRUCTIONS/ RULES

The *Merits of the health and safety procedures/instruction/rules* grouping is subdivided into:
- Fitness for purpose
- Understanding rules, procedures etc
- Permit to work

3.10.1 Allocation of items

Fitness for purpose [22 items]
Some health and safety procedures/instructions/rules do not need to be followed to get the job done safely. A3
Some safety rules and procedures do not need to be followed to get the job done safely. E20
There are too many health and safety procedures/instructions/rules given the real risks associated with the jobs for which I am responsible. A52
Some health and safety procedures/instructions/rules do not reflect how the job is now done. A27
Procedures reflect working practice. F149
Some health and safety procedures/instructions/rules are not really practical. A14
Some health and safety rules and procedures are not really practical. E24
Safety rules are practical to apply in all situations. F17
(The) rules do not always describe the safest way of working. B108 D49
The rules always describe the safest way of working. C48
Safety rules can be implemented without conflicting with established work practices. F14
The rules are too strict and I can work better without them. C45
The written safety rules and instructions are easy for people to understand and implement. C43
Rules and policies are constantly changing. B28
Some health and safety procedures/instructions/rules are only there to protect management's back. A38
Some rules are only there to protect (cover) management's back. B118 D55
My company's procedures are only there to cover management's back. B154*
The company's rules and procedures are only there to cover management's backs. C49
Some jobs here are difficult to do safely. A9
If I didn't take risks now and again, the job wouldn't get done. B135 C36 D26 *Also under 'Rule breaking'*
Sometimes it is necessary to take risks to get the job done. A47 *Also under 'Rule breaking'*
I get the job done better by ignoring some (of the) rules. B43 C66 D19 *Also under 'Rule breaking'*

Understanding rules, procedures etc [4 items]
Some health and safety procedures/instructions/rules are difficult to follow. A28
(The) written safety rules and instructions are too complicated (for people) to follow. B98 D50
Procedures are written in clear unambiguous language appropriate to the needs of the user. F151
Rules and regulations are somewhat vague and ambiguous. B18

Permit to work [11 items]
How satisfied do you feel with regard to the Permit to Work system? B92 C32
The Permit to Work System ensures safe working. B127
The requirements of the permit system are complied with in practice. F8
The permit-to-work system is always strictly applied and followed. A24
The PTW system is just a way of covering people's backs. B130 D40
Permit forms and procedures are clear, unambiguous and easy to use. F6
The permit-to-work system is 'over the top' given the real risks of some of the jobs it is used for. A29
The permit-to-work system causes unnecessary delays in getting the job done. A63
Permit users are consulted in the development and operation of permit systems. F5
Work to be done is checked by both permit issuer and permit receiver. F7
The permit system is systematically audited to identify problem areas. F9

3.10.2 Core items

Table 9 details those *Merits of the health and safety procedures/ instructions/ rules* items that are suggested for inclusion in a **Core Safety Climate Item Set**.

Table 9: Key items relating to *Merits of the health & safety procedures/ instructions/ rules*

Code	Text	Scoring
9.1	Some health and safety procedures/instructions/rules do not need to be followed to get the job done safely. A3	A
9.2	There are too many health and safety procedures/instructions/rules given the real risks associated with the jobs for which I am responsible. A52	A
9.3	Some health and safety procedures/instructions/rules do not reflect how the job is now done. A27 Procedures reflect working practice. F149	A
9.4	Some health and safety procedures/instructions/rules are not really practical. A14 Safety rules are practical to apply in all situations. F17	A

Contd. overleaf

9.5	(The) rules do not always describe the safest way of working. B108 D49 The rules always describe the safest way of working. C48	A
9.6	The written safety rules and instructions are easy for people to understand and implement. C43	A
9.7	Some health and safety procedures/instructions/rules are only there to protect management's back. A38	A
9.8	(The) written safety rules and instructions are too complicated (for people) to follow. B98 D50 Procedures are written in clear unambiguous language appropriate to the needs of the user. F151	A
9.9	How satisfied do you feel with regard to the Permit to Work system? B92 C32	B
9.10	The Permit to Work System ensures safe working. B127	A
9.11	The requirements of the permit system are complied with in practice. F8	A
9.12	The PTW system is just a way of covering people's backs. B130 D40	A
9.13	Permit forms and procedures are clear, unambiguous and easy to use. F6	A
9.14	The permit-to-work system is 'over the top' given the real risks of some of the jobs it is used for. A29	A

Scoring:
A - 5 point scale from 1 Strongly disagree through to 5 Strongly agree.
B - 5 point scale from 1 Very dissatisfied to 5 Very satisfied.

3.10.3 Summary

All of the questionnaires contribute items to the *Merits of the health and safety procedures/ instructions/ rules* grouping, with there being a total of 37 items. Three items concerning the apparent need to take risks in order to complete tasks are also found in the *Rule breaking* grouping.

Each of the subgroupings contributes suggested core items.

It is suggested that the five items below are ambiguous in their present form and would benefit from rephrasing. In item A28, 'difficult' could be interpreted as 'hard to follow as they are complicated'. Other possible meanings are that the procedures are simple but time consuming, or that they are difficult to comply with. In contrast, one item [*(The) written safety rules and instructions are too complicated (for people) to follow. B98/D60*] clearly indicates that complexity is the problem.

Some health and safety procedures/instructions/rules are difficult to follow. A28

The use of 'better' (as in items C45 and B43/C66/D19) can also be ambiguous. This may be interpreted as 'more safely', 'more easily', 'more quickly', or 'to a higher standard'.

The rules are too strict and I can work better without them. C45 I get the job done better by ignoring some (of the) rules. B43 C66 D19

Finally, the perceived need to take a risk (as in items B135/C36/D26 and A47) could be due to time constraints, complexity or the tasks not being technically feasible if the rules are adhered to.

If I didn't take risks now and again, the job wouldn't get done. B135 C36 D26 Sometimes it is necessary to take risks to get the job done. A47

One developer pointed out that it was not their intention to determine the reasons for violations/ unsafe acts/ risk-taking behaviour. All that was required was an overview of the self-reported incidence of these activities - irrespective of why they happened - for the purposes of general analysis. So the developer does not these items as ambiguous. However, they agree that such items would benefit from being more specific if motives for these activities were to be ascertained.

Further detailed items relating to 'Procedures' can be found in the *Procedures* grouping (see Section 3.14.8). These are not specifically safety-related.

3.11 RULE BREAKING

The *Rule breaking* grouping is subdivided into:
- Personal rule breaking
- Rule breaking - workforce in general
- Production pressure
- Staffing levels

3.11.1 Allocation of items

Personal rule breaking [19 items]
I ignore safety regulations to get the job done. B38 C61 D14
I bend the rules to achieve a target. B42 C65 D18
If I didn't take risks now and again, the job wouldn't get done. B135 C36 D26 *Also under 'Merits of the health and safety procedures/ instructions/ rules' grouping*
I take chances to get the job done. B41 C64 D17
I break work procedures. B40 C63 D16
I carry out activities which are forbidden. B39 D15
I get the job done better by ignoring some (of the) rules. B43 C66 D19 *Also under 'Merits of the health and safety procedures/ instructions/ rules' grouping*
Conditions at the workplace stop me working to the rules. B44 C67 D20
I take shortcuts which involve little or no risk. B46 C69 D22
I sometimes turn a blind eye to some less important health and safety procedures/instructions/rules. A65
I break rules due to management pressure. B47 C70 D23
Management would expect me to break health and safety procedures/instructions/rules to get the job done. A41
I do not adhere to codes of practice when under pressure. C62
I sometimes feel under pressure from my workmates to take chances. B107 D30
I am under pressure from my workmates to break rules. B48 C71 D24
Incentives encourage me to break rules. B45 C68 D21
I get financial rewards for breaking the rules. B49 D25
There is little advantage for me keeping strictly to the health and safety procedures/instructions/rules. A15
I can get the job done quicker by ignoring some rules. B137 D28

Rule breaking - workforce in general [8 items]
Not all health and safety procedures/instructions/rules are strictly followed here. A42
Safety rules and procedures are carefully followed. E7
People who work here often take risks when they are at work. A4
Safety procedures at work are adhered to even if short cuts would save time. F24
In critical situations written procedures are followed to the letter. F157
Sometimes it is necessary to take risks to get the job done. A47 *Also under 'Merits of the health and safety procedures/ instructions/ rules' grouping*
People here are sometimes pressured to work unsafely by their colleagues. A55
My workmates would react strongly against people who break health and safety procedures/instructions/rules. A70*

Production pressure [3 items]
Sometimes it is necessary to ignore safety regulations to keep production going. B136 C37 D27 *Also in 'Pressure for production' grouping*
Sometimes it is necessary to depart from safety requirements for production's sake. E38 *Also in 'Pressure for production' grouping*
Safety rules are adhered to even under production pressure. F12 *Also in 'Pressure for production' grouping*

Staffing levels [2 items]
Low manning levels sometimes result in rules being broken to get the job done. C38 *Also in 'Pressure for production' grouping*
Staff shortages sometimes result in rules being broken to get the job done. B101 D31 *Also in 'Pressure for production' grouping*

3.11.2 Core items
Table 10 details *Rule breaking* items that are suggested for inclusion in a **Core Safety Climate Item Set**.

Table 10: Key items relating to *Rule breaking*

Code	Text	Scoring
10.1	I ignore safety regulations to get the job done. B38 C61 D14	A
10.2	I bend the rules to achieve a target. B42 C65 D18	A
10.3	Conditions at the workplace stop me working to the rules. B44 C67 D20	A
10.4	I take shortcuts which involve little or no risk. B46 C69 D22	A
10.5	I break rules due to management pressure. B47 C70 D23	A
10.6	I am under pressure from my workmates to break rules. B48 C71 D24	A
10.7	Incentives encourage me to break rules. B45 C68 D21	A
10.8	I get financial rewards for breaking the rules. B49 D25	A
10.9	I can get the job done quicker by ignoring some rules. B137 D28	A
10.10	Not all health and safety procedures/instructions/rules are strictly followed here. A42	A
10.11	People here are sometimes pressured to work unsafely by their colleagues. A55	A
10.12	My workmates would react strongly against people who break health and safety procedures/ instructions/ rules. A70*	A
10.13	Sometimes it is necessary to ignore safety regulations to keep production going. B136 C37 D27 Safety rules are adhered to even under production pressure. F12	A
10.14	Low manning levels sometimes result in rules being broken to get the job done. C38	A

Scoring:
A - 5 point scale from 1 Strongly disagree through to 5 Strongly agree.

3.11.3 Summary

All of the questionnaires contribute items to the *Rule breaking* grouping, with there being a total of 32 items. Three items concerning the apparent need to take risks in order to complete tasks are also found in the *Merits of the health and safety procedures/ instructions/ rules* grouping. Three items concerning perceived pressure for production affecting adherence to safety rules and two relating to the effects of staffing levels are also found in the *Pressure for production* grouping.

Each of the subgroupings contributes suggested core items.

It is suggested that the items below are ambiguous in their present form and would benefit from rewording. For example, in item A15 'little advantage' could be interpreted in terms of 'safety', 'financial reward', 'speed of task completion' etc.

There is little advantage for me keeping strictly to the health and safety procedures/instructions/rules. A15

The use of 'better' (as in item B43/C66/D19) can also be ambiguous. This may be interpreted as 'more safely', 'more easily', 'more quickly', or 'to a higher standard'.

I get the job done better by ignoring some (of the) rules. B43 C66 D19

Finally, the perceived need to take a risk (as in items B135/C36/D26 and A47) could be due to time constraints, complexity or the tasks not being technically feasible if the rules are adhered to.

If I didn't take a risk now and again, the job wouldn't get done. B135/C36/D26 Sometimes it is necessary to take risks to get the job done. A47

3.12 WORKFORCE VIEW ON STATE OF SAFETY/ CULTURE

The *Workforce view on state of safety/culture* grouping is subdivided into:
- Overall attitude to safety
- Impact of work environment
- Personal safety
- 'No blame' culture

3.12.1 Allocation of items

Overall attitude to safety [15 items]

There is a good attitude to safety on this installation. B113 D59

Safety is taken seriously on this installation, it is not just a cosmetic exercise. B122 D58

People here think health and safety isn't their problem - it's up to management and others. A30

As the OIM changes, so does the safety culture. B144

Some of the workforce pay little attention to health and safety. A34

People here always work safely even when they are not being supervised. A25

I can trust most people who I work with to work safely. A50

I trust my workmates with my health and safety. A73*

All the people who work in my team are fully committed to health and safety. A71*

People here always wear their health and safety protective equipment when they are supposed to. A36

People who work here sometimes take risks at work which I would not take myself. A61

People on this installation refuse to do work if they feel the task is unsafe. B143 D60

The standard of safety is very high at my place of work. B103 D62

Co-workers often give tips to each other on how to work safely. E6

Indicate the extent to which you are satisfied/dissatisfied with your work mates' commitment to safety. C75

Impact of work environment [2 items]

Sometimes physical conditions at the workplace restrict people's ability to work safely. A49

Sometimes conditions here hinder my ability to work safely. E33

Personal safety [19 items]

A safe place to work has a lot of personal meaning to me. E39

Personal safety is important to me. F19

It is important to me that there is a continuing emphasis on safety. E15

Safety is the number one priority in my mind when completing a job. E5

Personally I feel that safety issues are not the most important aspect of my job. E26

Health and safety briefings are a waste of time. A57

A certain amount of risk is no problem if you have 'what it takes'. B116

Whenever I see safety regulations being broken I point it out on the spot. B125 C39 D32

When people ignore safety procedures here, I feel it is none of my business. E35

I take care of my colleagues safety at work. F21

It is important for me to work safely if I am to keep the respect of the others in my team. A72*

Personal security can be accommodated within normal work. F113

Generally speaking, how safe do you feel in your job? B76

I know the job so well, that I am extremely unlikely to be involved in an accident. B106

This is a safer place to work than other companies I have worked for. E17

I am rarely worried about being injured on the job. E21

I am careful to avoid accidents at work. F25

I am sure it is only a matter of time before I am involved in an accident. E9

In my workplace the chances of being involved in an accident are quite large. E27

'No blame' culture [15 items]

This is a no-blame organisation. F273

This installation has a 'no-blame culture'. B132 D48

A no-blame approach is used to persuade those acting unsafely that their behaviour is inappropriate. E44

Accidents which happen here are always reported. A8 *Also in 'Accidents/incidents/near misses' grouping*

People are willing to report accidents. C46 *Also in 'Accidents/incidents/near misses' grouping*

People are reluctant to report accidents. B121 D33 *Also in 'Accidents/incidents/near misses' grouping*

Near misses are always reported. A13 *Also in 'Accidents/incidents/near misses' grouping*

People are willing to report near misses. C41 *Also in 'Accidents/incidents/near misses' grouping*

People are reluctant to report near misses. B141 D34 *Also in 'Accidents/incidents/near misses' grouping*

Mistakes are corrected without punishment and treated as a learning opportunity. F133

The possibility of making an error is accommodated within normal work activity. F271

When an error occurs, adequate support is given by management to those involved. F270

Drilling crew members correct each others mistakes if they occur. F272

Drilling crew members involved in operational incidents are treated fairly. F274

Drilling crew members are not subject to reprisals if they make errors in their work. F275

3.12.2 Core items

Table 11 details *Workforce view on state of safety/culture* items that are suggested for inclusion in a **Core Safety Climate Item Set**.

Table 11: Key items relating to *Workforce view on state of safety/ culture*

Code	Text	Scoring
11.1	Safety is taken seriously on this installation, it is not just a cosmetic exercise. B122 D58	A
11.2	People here think health and safety isn't their problem - it's up to management and others. A30	A
11.3	I can trust most people who I work with to work safely. A50	A
11.4	People on this installation refuse to do work if they feel the task is unsafe. B143 D60	A
11.5	The standard of safety is very high at my place of work. B103 D62	A
11.6	Sometimes physical conditions at the workplace restrict people's ability to work safely. A49	A
11.7	It is important to me that there is a continuing emphasis on safety. E15	A
11.8	Whenever I see safety regulations being broken I point it out on the spot. B125 C39 D32 When people ignore safety procedures here, I feel it is none of my business. E35	A
11.9	I am rarely worried about being injured on the job. E21 I am sure it is only a matter of time before I am involved in an accident. E9 In my workplace the chances of being involved in an accident are quite large. E27	A
11.10	This installation has a 'no-blame culture'. B132 D48	A
11.11	People are willing to report accidents. C46 People are reluctant to report accidents. B121 D33	A
11.12	People are willing to report near misses. C41 People are reluctant to report near misses. B141 D34	A
11.13	Mistakes are corrected without punishment and treated as a learning opportunity. F133	A

<u>Scoring</u>:
A - 5 point scale from 1 Strongly disagree through to 5 Strongly agree.

3.12.3 Summary

All of the questionnaires contribute items to the *Workforce view on state of safety/ culture* grouping, with there being a total of 51 items. Six items concerning willingness to report accidents/ incidents/ near misses are also found in the *Accidents/ incidents/ near misses* grouping.

Each of the subgroupings contributes suggested core items.

It is suggested that the item below is ambiguous in its present form and would benefit from rephrasing. Use of the term 'how safe' could be interpreted as 'how secure'.

Generally speaking, how safe do you feel in your job? B76

3.13 ASSESSMENT OF SAFETY LEVELS

There are a number of items that assess personal perception of safety with regard to a range of specific hazards, services and activities. These are framed in terms of:
- How safe do you feel from being injured by ..... ?
- How safe do you feel when .....?
- How satisfied do you feel with regard to .....?
- How satisfied are you with .....?

3.13.1 Allocation of items

Although existing items are shown in subgroups overleaf, investigation of most issues in terms of perceived level of safety can be facilitated by use of any of the question-framing options.

How safe do you feel from being injured by …. [18 items]
How safe do you feel from being injured by loss of contaminant? B50
How safe do you feel from being injured by explosion? B51
How safe do you feel from being injured by fire? B52
How safe do you feel from being injured by blow-out? B53
How safe do you feel from being injured by gas leak? B54
How safe do you feel from being injured by toxic gas (e.g. H_2S)? B55
How safe do you feel from being injured by structural failure? B56
How safe do you feel from being injured by electric shock? B57
How safe do you feel from being injured by contact with cold/hot surfaces, pipes, etc? B58
How safe do you feel from being injured by crushing by machinery or machine parts? B59
How safe do you feel from being injured by slipping? B60
How safe do you feel from being injured by falling overboard? B61
How safe do you feel from being injured by falling to a lower level? B62
How safe do you feel from being injured by falling object? B63
How safe do you feel from being injured by weather conditions? B64
How safe do you feel from being injured by helicopter crashing on the installation? B65
How safe do you feel from being injured by vessel hitting installation? B66
How safe do you feel from being injured by sabotage act? B67

How safe do you feel when ….? [8 items]
How safe do you feel when you perform non-routine operations? B68
How safe do you feel when you are completing a task started by others? B69
How safe do you feel when the process is being started up by others? B70
How safe do you feel when drilling operations are in progress? B71
How safe do you feel when the equipment you are working on has been isolated by someone else? B72
How safe do you feel when you move about on the platform? B73
How safe do you feel when you are flying in a helicopter? B74
How safe do you feel when working near ionising radiation? B75

How satisfied do you feel with regard to …? [16 items]
How satisfied do you feel with regard to housekeeping at the workplace? B80 C25
How satisfied do you feel with regard to protection and safety devices on machines and equipment? B82
How satisfied do you feel with regard to escape routes on the platform? B83
How satisfied do you feel with regard to evacuation devices? B84
How satisfied do you feel with regard to medical services? B86
How satisfied do you feel with regard to marking and signposting? B87
How satisfied do you feel with regard to reliability of alarm systems? B89
How satisfied do you feel with regard to fire and gas detection systems? B90
How satisfied do you feel with regard to deluge systems? B91
How satisfied do you feel with regard Temporary Refuge (TR)? B93
How satisfied do you feel with regard to availability of personal safety equipment? B88
How satisfied do you feel with regard to toolbox talks? C34
How satisfied do you feel with regard to the quality of safety meetings? C27
How satisfied do you feel with regard to controls and inspection routines for safety? B77
How satisfied do you feel with regard to safety audits/inspections? C30
How satisfied do you feel with regard to social and team-building activities? C33 C86

How satisfied/dissatisfied are you with …? [3 items]
How satisfied/dissatisfied are you with safety measures on the installation? C78
How satisfied/dissatisfied are you with procedures for risk assessment and control? C79
How satisfied/dissatisfied are you with safety rules and procedures? C82

3.13.2 Core items

All of the 45 *Assessment of safety levels* items originate from two of the questionnaires (B and C). None of these items are suggested for definite inclusion in the **Core Safety Climate Item Set**. It is more appropriate that a potential user reviews the available items and decides which, if any, of the items are of particular relevance to their needs. It would be straightforward to develop further items of these generic types, tailored to address particular issues.

3.14   DETAILED EXAMINATION OF SPECIFIC TOPICS

There are 10 further sets of items. These sets cover:
- topics not included in earlier item groupings
- additional items that could supplement earlier item groupings if a topic requires detailed examination

These item sets are:
- Planning for emergencies
- Maintenance
- Task allocation and human factor design
- Work pressures
- Work environment
- Individual competence, capacities, health and skills
- Procedures
- Safety priorities
- Management/structural (including decision making and team working)
- Various

The majority of the items included here originate from the most comprehensive Questionnaire, that which was devised for drilling related use. Where items are worded to be drilling-related they can readily be modified, either to be specific to another work activity or to apply generically.

No attempt has been made to pre-determine which of the listed items are recommended for use. Each potential user will have a specific set of circumstances and issues in mind when they review the list for relevant items.

3.14.1 Planning for emergencies

Planning for emergencies [17 items]

Copies of the emergency plans are available on demand for inspection by personnel and visitors. F276

New personnel are instructed on emergency procedures immediately they join the rig. F277

Emergency planning meetings review the adequacy of evacuation plans. F278

Emergency planning meetings review emergency preparedness with regard to a range of fully documented emergency scenarios. F279

Specific plans are made to deal with particular types of emergencies. F280

Additional personnel are available to provide cover in the event of an emergency. F281

Emergency exercises are at sufficiently frequent intervals. F282

Emergency response drills and exercises take place frequently. F283

Each person on the rig understands what they should do in an emergency situation. F284

Planned exercises include an implementation of the evacuation plan. F285

Emergency training drills and exercises are supervised and monitored by rig management. F286

Full-scale emergency exercises are monitored and assessed by independent observers. F287

Situations requiring the deployment of the emergency plan are subject to a formal incident investigation inquiry which considers the effectiveness of the emergency response. F288

Written incident reports are prepared which assess the overall quality of the emergency response. F289

When the emergency response fails to match up to expectations in some way, action is immediately taken to rectify the problem. F290

Authorisation is required for by-passing emergency protection systems. F291

Non-operational activities are managed separately in an emergency situation. F294

3.14.2 Maintenance

Maintenance [23 items]

Maintenance work is prioritised according to safety and system criticality. F295

Safety and system critical equipment are subject to preventive maintenance. F296

Thorough planning (availability, equipment, personnel) is carried out prior to maintenance work. F297

Adequate fault diagnostics are available to drilling crews and maintenance personnel. F298

Maintenance support equipment is readily available and in a state of good repair. F299

Incidents of parts failures are logged to establish chronic maintenance problems. F300

Maintenance requirements are adequately considered in the design of equipment. F301

Maintenance personnel are involved in the design and siting of new equipment. F302

Maintenance personnel are involved in planned modifications to system equipment. F303

Maintenance personnel initiate changes to improve maintainability. F304

Equipment needing regular maintenance is easily accessible. F305

The quality of maintenance work is unaffected by access considerations. F306

Critical spare parts are available from stock. F307

The time required to obtain spare parts is known and acceptable. F308

Good availability of spares ensures that correct parts rather than substitute parts are fitted. F309

Appropriate back-up equipment is readily available. F310

The parts system ensures that the correct spare parts are identified and used. F311

Maintenance procedures are available for new equipment. F312

Maintenance procedures for new equipment are available prior to its use. F313

Sufficient access time to equipment is made available for preventive maintenance. F314

Sufficient access time to equipment is made available for breakdown maintenance. F315

Maintenance backlog levels are an indicator for managing resources to deal with preventive and breakdown maintenance. F316

Breakdowns are infrequent due to good maintenance. F319

3.14.3 Task allocation and human factor design

Task allocation and human factor design [30 items]

Formal analyses are carried out to determine if tasks should be performed by people or machines. F164

Drilling crews are consulted when tasks are allocated between humans and machines. F165

People and machines are assigned tasks to which they are best suited. F166

Controls and displays are clearly labelled. F191

Labelling of all equipment is adequate. F192

The operation of all controls are consistent and clearly labelled. F193

Controls and displays are arranged to reflect importance and frequency of use. F194

Controls and displays are arranged to reflect the natural sequence of use. F195

Controls are located nearest to the display to which they correspond. F196

The controls used match the control action required (eg use of toggle switches, push buttons for on/off and multiple position/rotary switches for more choices). F197

Movement of control actions and the corresponding display response is consistent and compatible with operator expectations. F198

Control/displays are designed to avoid confusion. F199

The design of the control panel supports the operator in taking the right action. F200

Controls are designed to prevent accidental activation. F201

The control panel displays all relevant information required by the drilling crew. F202

Information is displayed in a way that can be easily read. F203

Information is represented on displays in the most appropriate form, eg counters for precise numerical information or moving pointers for qualitative information. F204

Information is displayed in a consistent way. F205

Colour coding on controls and displays is used effectively. F206

Supplementary information on the well situation is readily available. F207

Irrelevant information is minimised on displays. F208

Warnings are easy to understand. F209

Alarms are easy to understand. F210

Drilling crews trust the alarm system. F211

When equipment is commissioned or updated, staff who will operate this equipment are actively involved in the design or updating process. F212

Using different types of equipment can be accommodated within normal work. F213

Personal Protective Equipment (PPE) use is systematically enforced. F214

Appropriate personal protection is available and worn in extreme conditions. F216

Personnel can work efficiently when wearing relevant personal protection. F217

Areas and requirements for personal protective equipment are clearly designated. F218

3.14.4 Work pressures

Work pressures [26 items]

The time required for each task has been identified. F167
The need for the drilling crew to work on concurrent tasks has been minimised. F168
There is sufficient 'thinking time' to enable staff to plan and carry out their work to an adequate standard. F172
Distractions can be accommodated without adversely affecting work. F173
Maintaining attention to a task is not a problem. F174
Frustrations that arise from factors outside staff control can be accommodated without adversely affecting work. F175
Managers and drilling crews have broadly similar perceptions of work activity. F176
Workload adjustments which have to be made at short notice can be accommodated without adversely affecting work. F178
Adequate rest periods are available during a shift. F180
Adequate provision is made for catching up on sleep during one's tour of duty. F181
Shift rotas are satisfactory. F182
Drilling crews are advised of any medical condition which could be made worse by shift-work. F183
The drilling crew are able to take a rest break from work where aspects of the work activity make it particularly difficult. F184
Provisions are made to provide extra support during heavy work levels. F185
Allowances in expected production are made for the fatigue of the drilling crew during night shift. F186
Drilling crew regularly request additional assistance when facing work overload. F241
Management demands for information are reasonable. F250
Paperwork can be accommodated within normal work activities. F251
The shift system is designed to avoid fatigue. F253
Drilling crews are satisfied with the shift system. F254
There is a system to ensure that an individual has a manageable number of tasks allocated to them. F169
Drilling crews have adequate time to carry out tasks. F171
Prioritisation of tasks enables drilling crews to carry out critical tasks when there is time pressure. F170
People often have to work overtime to get their work done. B29
The rota system allows family demands to be coped with. F145
The rota system is conducive to good working practice. F146

3.14.5 Work environment

Work environment [23 items]

Drilling crews' exposure to extreme temperatures is minimised. F90
Drilling crews are kept at appropriate temperatures to work effectively. F91
Drinking water is readily available. F92
Drilling crews have access to a sheltered environment on occasions of extreme weather conditions. F93
In adverse circumstances workers can take a break whenever needed. F94
Noise from facilities is minimised. F95
Communication is possible using only slightly raised voices. F96
All facility areas including aisles, walkways and stairways are adequately lit. F97
Appropriate supplementary lighting is used for inspection and maintenance tasks. F98
The emergency lighting is assessed to ensure its adequacy for the area. F99
Information can be clearly read without noticeable glare. F100
Important and frequently used instruments are located for ease of use. F101
Important and frequently used points of operation are easily accessible. F102
Instruments are easily readable from normal work areas, both day and night. F103
Instruments can be easily operated in emergency situations. F104
Drilling crew consider equipment to be as reliable as possible. F105
There is adequate space to carry out necessary operations at the work point. F106
There is adequate space for more than one person at the work point for training or to assist the primary operator. F107
Aisle ways are a minimum of 3ft wide. F108
Aisle ways are free from obstruction. F109
Exit routes are clearly identifiable in both day and night time. F110
Exist routes are convenient and unobstructed. F111
Distractions from the environment are minimised. F112

3.14.6 Individual competence, capacities, health and skills

Individual competence, capacities, health and skills *[11 items]*
Skill requirements are clearly defined for each operating and maintenance position. F125
Key positions are filled by people with appropriate skill and experience. F126
Workers are given opportunities for self-development. F127
Drilling crews have access to self-assessment techniques to develop individual knowledge of personal tendencies. F128
Managers periodically provide assessments for individuals which help identify the person's particular areas of strength and weakness. F129
Drilling crews health is checked on a regular basis. F144
The staff recruitment and retention policy ensures that an adequate supply of skilled staff is available. F187
Personnel are selected on their experience, competencies and qualifications. F188
The physical demands of the job are easily met by the drilling crews. F189
The physical demands are not sustained over time in a repetitive manner. F190
Individuals have access to methods (advisors, diagnosis etc) to help them cope with stress. F247

3.14.7 Procedures

Procedures *[11 items]*
An effective and well-documented procedures development system exists. F147
Procedures are technically accurate. F148
Procedures are complete and comprehensive. F150
Procedures reflect the most effective work method. F152
The consequences of not following procedures are made clear. F153
Procedures are at the right level for your experience and the job. F154
The need for written procedures is fully accepted by drilling crews. F155
Routine use of written experience is fully accepted by drilling crews. F156
Changes to procedures are highlighted and drawn to the attention of users. F159
If procedures are provided but not used, the reasons for this are investigated. F160
The system is systematically audited to identify problem areas. F163

3.14.8 Safety priorities

Safety priorities *[14 items]*
Safety-critical procedures are documented in a company safety manual. F1
The safety manual is easily accessible to individual workers. F2
The safety manual is updated to incorporate working practice. F3
The safety manual is updated to incorporate new standards and guidelines. F4
There is follow-up to ensure audit findings are acted upon. F10
Work activities are designed to discourage risk taking. F18
I aim to reduce the risks at work. F20
I am careful at work. F22
I assess the risks before acting at work. F23
I aim to reduce the risks at home. F26
I take care of my family's safety at home. F27
I am careful at home. F28
I assess the risks before acting at home. F29
I am careful to avoid accidents at home. F30

3.14.9 Management/ structural (inc. decision making & team working)

Management/structural (including decision making and team working) *[16 items]*
I am happy with the decisions which are made. F232
The reasons for decisions are explained. F234
Decisions are made on the basis of evidence rather than 'gut feelings'. F235
Alternative courses of action are considered before a decision is made. F236
Management seeks to avoid conflict whenever possible in decision making. F233
Drilling crews are clear about what is expected of them and how to achieve the results. F237
There is adequate opportunity to learn from the shared experiences across the organisation. F238
Teams are formed to work on agreed goals. F239

Team spirit and group identity is rated high within the workgroup. F46
All personnel see their participation in the team as a positive experience. F240
Managers and supervisors provide support to resolving difficult individual relationships. F245
Provisions are made to minimise the isolation of one employee from others. F246
Drilling crew members are encouraged to support and look out for each other's well being. F248
Lines of responsibility are always made clear. F255
Responsibility is always assumed by the most senior person available. F256
Responsibility is always assumed by the person with the most expertise. F257

3.14.10 Various

Various [16 items]
Things are sometimes pretty disorganised. B14
Activities are well planned. B16
Fringe benefits are fully explained to employees. B26
The responsibilities of supervisors are clearly defined. B20
Supervisors encourage employees to be neat and orderly. B30
I know what I can expect from others. B37
HSE inspectors have an accurate perception of safety on this installation. B99
On the whole, regulation by HSE works well. B119
Safety officers are in management's pockets. B100
Some people are accident prone. B147
The contracting companies can only go so far to improve safety, it's down to the operating company. B151*
I feel as safe working under the operator's supervisors as my own company's supervisors. B165*
Good work is recognised and rewarded. F115
Good working relationships exist in this organisation. F139
Drilling crew members feel a considerable sense of responsibility with respect to their work. F140
Drilling crews are aware of the financial implications of their work to the company. F143

3.15 FREE RESPONSE ITEMS

Several of the questionnaires include at least one 'free response' item to gather workforce opinions and suggestions for improvement. The wording used is shown below.

Please give three suggestions which you feel would give the biggest improvement to health and safety in the Company. A74
If you would like to be more involved in safety, please write below how you would like to become more involved. C23
If you have any further comments you would like to make about the state of safety on this installation/vessel, please write them down in the space provided. C
Do you have any other comments about health and safety in your workplace? E47

At least one 'free response' item should be included in any questionnaire-based survey. Although the responses are not amenable to rigorous statistical analysis, they can aid identification of employees' key concerns. This often allows greater insight when drawing conclusions from the main analyses. 'Free response' items can also be invaluable sources of suggestions for improvements from those most directly affected. The wording used should be chosen to suit the organisation and prevailing circumstances, as well as to encourage responses from all of those who receive the questionnaire.

3.16 ACCIDENT HISTORY ITEMS

Depending on the aims of a particular survey, the questionnaire may include a section on self-reported accidents and near-misses and the causes which victims ascribe to their accident. It is then possible to look for relationships between personal accident histories and attitudes and behaviours as revealed in responses to the other questionnaire items. The number of accident history items and

level of detail used can vary considerably. Some questionnaires do not include any such items, while others contain a limited number of items. Typical limited sets might be:

Typical items	Free text/ Typical pre-defined sets of responses
1. Have you had a work accident on this installation/ rig where you sought medical attention in the period (*month/year*) to (*month/year*)?	Yes/ No
2. Have you had a near-miss on this installation/ rig in the period (*month/year*) to (*month/year*) which could have resulted in at least an LTI?	Yes/ No
or	
1. Have you ever had an accident?	Yes/ No
2. How many accidents have you had in the last two years?	Free text
3. How many accidents have you had while working on this installation?	Free text
4. Who initiated the most serious accident you have had working?	Yourself, Workgroup member, Other crew member

Where this is an aspect of particular interest, the limited list might be supplemented by several more detailed items. For example, a typical detailed set might be:

Typical items	Typical pre-defined sets of responses
1. Have you ever had an accident (on any installation) where you needed medical attention?	Yes/ No
2. When was the last time you had an accident where you needed medical attention?	Within 6 months, Within 1 year, More than 1 year
3. How many accidents have you had within the past two years?	One, Two, Three, Four or more
4. Have you had an accident on this installation?	Yes/ No
5. With regard to the most serious accident you have had within the past two years on this installation: who initiated the accident?	Yourself, Work group member, Other crew member
6. With regard to the most serious accident you have had within the past two years on this installation: severity of injury?	Serious injury (45+ days off work), Lost time (3+ days off work), Medical treatment (minor), First aid (minor)
7. With regard to the most serious accident you have had within the past two years on this installation: injury source?	Fall from a height, Fall at same level, Struck by/against object, Manual handling, Mechanical Lifting, Simple bodily movement, Contact with chemicals, Electricity, Fire/explosion, Loss of integrity, Hand tools, Diving related, Other (describe)
8. With regard to the most serious accident you have had within the past two years on this installation: contribution of the person to the cause of the accident.	Lack of competence, Lack of knowledge, Lack of experience, lack of skill, Poor decision making, Stress, Work overload, Fatigue, Lack of communication, Conflicting demands, Motivation, Time pressure, Carelessness, Frustration, Domestic issues, Other (describe)
9. With regard to the most serious accident you have had within the past two years on this installation: contribution of the job to the cause of the accident.	Inadequate supervision, Lack of job instruction, Inadequate training, Inadequate planning, Lack of skill, Inadequate inspection, Inadequate procedures, Inadequate communication, Inadequate design, Inappropriate allocation of responsibility, Too few staff, Other (describe)

10. How many near-misses have you been involved in within the past 2 years on this installation?	None, One, Two, Three, Four or more
11. What might have been the worst probable outcome of the most severe near-miss you have had on this installation?	Fatality, Serious injury (45days+ off work), Lost time (3+ days off work), Medical treatment (minor), First aid (minor)

It is for the potential user to decide whether they wish to use a questionnaire with no accident history items, a limited set of such items, or if this topic merits detailed examination via a comprehensive set of related items.

3.17 CORE SAFETY CLIMATE ITEM SET

A summary table of the core set of safety climate items - compiled from Tables 1 to 11 in Sections 3.2 through to 3.12 - can be found in the Summary at the front of the Guide (Table S2: Core Safety Climate Item Set).

4 Customised Questionnaires

For any organisation wishing to compile a customised survey questionnaire, some general guidance is offered.

4.1 CONDITIONS ATTACHED TO USE OF QUESTIONNAIRE ITEMS

Before making any attempt to compile and use a questionnaire incorporating items included in this Guide, the reader should be aware that the following conditions apply.

Code	Questionnaire	Developer
A	Health and Safety Climate Survey Tool	Health & Safety Executive
The tool can be purchased from HSE Books for use in its complete form (see Part 1, Section 3.1). Permission to use selected individual items would need to be sought from HSE.		
B	Offshore Safety Questionnaire [OSQv1]	Robert Gordon University/Aberdeen University
The tool is in the public domain. Potential users are requested to advise the developers of their intentions to use the tool (see Part 1, Section 3.2).		
C	Offshore Safety Climate Questionnaire [OSQ99]	Aberdeen University
Use of the tool requires permission from Aberdeen University and there are further conditions attached to its use (see Part 1, Section 3.3). Permission to make use of selected individual items would also need to be sought from Aberdeen University.		
D	Computerised Safety Climate Questionnaire [CSCQ]	Robert Gordon University
All offshore oil & gas companies are allowed free access to the questionnaire and associated analysis software (see Part 1, Section 3.4).		
E	Loughborough Safety Climate Assessment Toolkit [LSCAT]	Loughborough University
The tool is in the public domain and available for use free of charge. See Part 1, Section 3.5 for details of access. Permission to use selected individual items would need to be sought from Loughborough University.		
F	Quest Safety Climate Questionnaire [QSCQ]	Quest Evaluations and Databases Ltd
The developers retain copyright of the Safety Climate Questionnaire. Any company or individual wishing to make use of the complete questionnaire or selected individual items should contact Quest Evaluations and Databases Ltd (see Part 1, Section 3.6).		

4.2 CLARITY OF PURPOSE

Before starting to compile a questionnaire, it is important to define the objectives of the intended survey. For example, if no previous safety climate surveys have been carried out, it may be desirable to gain a 'broad snapshot' of the current situation by including a few items from each of the core item groupings. However, there may be a desire to focus mainly on some specific issues - eg to investigate what is behind violations that are occurring, or to examine the impact of a recent health & safety training initiative. Conversely, there may be a wish to exclude certain item groupings that do not address the objectives of the proposed survey.

4.3 LENGTH OF QUESTIONNAIRE

It is recommended that a maximum of 60 items be selected from Table 4.1 for use in a core questionnaire. This set will need to be supplemented by a few *General Information* items (see Section 3.1). It is suggested that the number of *General Information* items included be kept as small as possible; such items should only be used if it is expected that they will be needed to break down the survey population in subsequent analyses. Where possible, pre-defined responses should be used (eg for job type) to facilitate analysis.

4.4 'FREE RESPONSE' ITEMS

It is recommended that at least one 'free response' item be included in any survey questionnaire. Such items can aid identification of employees' key concerns, often allowing greater insight when drawing conclusions from the main analyses. They can also be invaluable sources of suggestions for improvements from those most directly affected. The wording used should be chosen to suit the organisation and prevailing circumstances, as well as to encourage responses from all of those who receive the questionnaire.

4.5 ACCIDENT HISTORY ITEMS

Depending on the aims of a particular survey, the user may wish to include a section on self-reported accidents and near-misses and the causes which victims ascribe to their accident. This allows investigation of any relationships between personal accident histories and attitudes and behaviours in responses to the main questionnaire items. It is for the potential user to decide whether to use a questionnaire with no accident history items, a limited set of items, or if this topic merits detailed examination.

4.6 ADDITIONAL ITEMS

As well as the core set of 114 items, use of some of the remaining items in the subgroupings - that did not go forward to the core set - should be considered, especially for topics requiring detailed examination. For example, there is a total of 61 items under *Training and competence*, yet only 8 are included in the core set. There are further items that have not contributed to the core set in *Assessment of safety levels* (Section 3.13). Finally, there are a further 187 items in Section 3.14 that allow more detailed examination of specific topics, such as *Maintenance* or *Work pressures*.

4.7 SCORING

Items and related scoring may be used exactly as specified in the source questionnaires or framed in an alternative form. For example, an original item may be framed as *'How satisfied/ dissatisfied are you with communication at shift handover?'*, requiring a response of the form '*1 Very dissatisfied to 5 Very satisfied*'. This could be rephrased as *'There is good communication at shift handover.'*, with scoring *'Strongly disagree to strongly agree'*.

4.8 VALIDATION OF ITEMS

All items from the source questionnaires have been validated by the relevant tool developers. The authors of this Guide have reviewed, grouped and selected sets of items that they consider to be of particular value for investigating the prevailing safety climate of an organisation/ installation. However, there has not been any attempt to validate customised questionnaires formed from new combinations of existing items. It is essential that the user pilots any newly created questionnaire and makes any necessary adjustments before widespread use.

5 Organisational Maturity

Items in each of the six Safety Climate questionnaires have been reviewed to establish which, if any, may aid identification of the current state of maturity of an organisation or installation, as defined by the draft Safety Culture Maturity Model (SCMM) in Part 1, Section 1.6.

Although none of the questionnaires were developed with this aim in mind, there are items that could contribute to the identification process. Table 5.1 lists such items, subdivided into the same groupings as used earlier in Part 2, with the addition of the 'Safety priorities' grouping. Where there are several similar, but not identical, items in the questionnaires, only one example is given here. The rationale for selection of the listed items is given at the end of each grouping.

Table 5.1: Items that may assist in identifying organisational maturity

Training		
1	Training has given me a clear understanding of all those aspects of my job which are critical to safety.	F59 [adapted]
2	The training I had covered all the health and safety risks associated with the work for which I am responsible.	A40
3	Training is updated to reflect findings of incident investigations.	F71
4	Personnel are given communication skills training.	F84
5	Management place a low priority on health and safety training. (*also in 'Perception of organisational/management commitment to H&S - general'*)	A53
According to the SCMM, 'Training' is one of ten elements that make up the safety culture maturity of an organisation. Item (3) is identified with 'Learning organisations', while item (4) emphasises the importance attributed to 'Communication', these being two other elements.		
Job security & job satisfaction		
1	Management cares about the negative effect that job uncertainty has on safety.	C57
2	The workforce generally feel challenged and motivated by their work tasks.	F243 [adapted]
3	The workforce have a high level of job satisfaction.	F124 [adapted]
'Industrial relations and job satisfaction' is one of the ten elements. The greater the perceived job security and job satisfaction, the more mature the safety culture of an organisation is likely to be.		
Pressure for production		
1	There is sometimes pressure to put production before safety on this installation.	B126/D39
2	Sometimes it is necessary to ignore safety regulations to keep production going. (*also in 'Rule breaking'*)	B136/C37/ D27
3	There are always enough people available to get the job done safely.	E40
4	Nowadays, managers are more interested in safety than production.	B111
5	The company would stop us working due to safety concerns, even if it meant losing money. (*also in 'Perception of organisational/management commitment to H&S - general'*)	C59
'Productivity versus safety' is one of the ten elements. The less conflict perceived between production and safety, the more mature the safety culture of an organisation is likely to be.		
Communications		
1	I am satisfied with the way I am kept informed about what takes place on this installation.	B31/C11
2	There is good communication here about safety issues which affect me.	E13
3	The crew is always given feedback on incidents that occur on this installation. (*also in 'Accidents/incidents/near misses'*)	B131/D56
'Communication' is one of the ten elements. The greater the satisfaction with communication (and in particular, safety-related communication), the more mature the safety culture of an organisation is likely to be.		

Perceptions about personal involvement in H&S

1	I can influence health and safety performance here.	E32
2	I feel involved when health and safety procedures/instructions/rules are developed or reviewed.	A16
3	When decisions are being made about safety issues which may affect you, how involved do you feel?	C20
4	In planning and decision making about your work activities, how involved do you feel?	C19

'Participation' is one of the ten elements. The greater the perception of involvement in planning and decision making processes, the more mature the safety culture of an organisation is likely to be.

Accidents/incidents/near misses

1	When incidents occur, factors outside the control of the individuals involved (eg training, procedures, communications, job) are taken fully into account.	F263
2	Members of investigation teams are trained to identify true root causes rather than blame human error.	F264
3	The investigation system considers management and policy influences on the causes of incidents.	F265
4	People are willing to report accidents.	C46
5	People are willing to report near misses.	C41
6	The crew is always given feedback on incidents that occur on this installation. (*also in 'Communications'*)	B131/D56
7	Management acts only after accidents have occurred.	E22
8	Some people are accident prone. (**under 'Various' grouping*)	B147

Management and workforce perceptions of accident causation and actions taken to prevent accidents are one aspect that aids definition of the five levels of the SCMM.

Perception of organisational/management commitment to H&S - general

1	The company really cares about the health and safety of the people who work here.	A45
2	The company would stop us working due to safety concerns, even if it meant losing money. (*also in 'Pressure for production'*)	C59
3	Management place a low priority on health and safety training. (*also in 'Training and competence'*)	A53
4	Management acts decisively when a safety concern is raised.	E12
5	The company encourages suggestions on how to improve health and safety.	A33
6	There is a suggestion scheme with rewards for safety issues.	F221
7	I get praised for working safely.	C14
8	I cannot always get the equipment I need to do the job safely.	E46
9	Management trust the (*employees/workforce/job group*) in this organisation.	F137 [adapted]
10	The (*employees/workforce/job group*) trust the management in this organisation.	F136 [adapted]

'Management commitment and visibility', 'Safety resources', 'Participation' and 'Trust' are four of the SCMM elements. Each is reflected in one or more of the above items. The more positive the more response, the more mature the safety culture of an organisation is likely to be.

Perception of organisational/management commitment to H&S - specific

1	My OIM is genuinely concerned about the health and safety of people on this installation/rig.	C53
2	I trust my OIM.	C44
3	Supervisors devote sufficient effort to health and safety here.	A67

'Management commitment and visibility' and 'Trust' are two of the SCMM elements, each is reflected in one or more of the above items. The more positive the more response, the more mature the safety culture of an organisation is likely to be.

Merits of the H&S procedures/instructions/rules

1	Some health and safety procedures/instructions/rules do not need to be followed to get the job done safely.	A3
2	There are too many health and safety procedures/instructions/rules given the real risks associated with the jobs for which I am responsible.	A52
3	Some health and safety procedures/instructions/rules do not reflect how the job is now done.	A27
4	Some health and safety procedures/instructions/rules are not really practical.	A14
5	The rules always describe the safest way of working.	C48
6	The written safety rules and instructions are easy for people to understand and implement.	C43

The above items help identify whether the workforce's 'perceptions about safety' (as revealed in their questionnaire responses) are shared by the management. 'Shared perceptions about safety' is one of the SCMM elements.

	Rule breaking	
1	Management would expect me to break health and safety procedures/instructions/rules to get the job done.	A41
2	People here are sometimes pressured to work unsafely by their colleagues.	A55
3	My workmates would react strongly against people who break health and safety procedures/ instructions/rules.	A70
4	Sometimes it is necessary to ignore safety regulations to keep production going. (*also in 'Pressure for production'*)	B136/C37/ D27
	The above items help identify whether the workforce's 'perceptions about safety' (as revealed in their questionnaire responses) are shared by the management. 'Shared perceptions about safety' is one of the SCMM elements.	
	Workforce view on state of safety/culture	
1	People here think health and safety isn't their problem - it's up to management and others.	A30
2	People here always work safely even when they are not being supervised.	A25
3	I trust my workmates with my health and safety.	A73
4	People here always wear their health and safety protective equipment when they are supposed to.	A36
5	People on this installation refuse to do work if they feel the task is unsafe.	B143/D60
6	It is important to me that there is a continuing emphasis on safety.	E15
7	When people ignore safety procedures here, I feel it is none of my business.	E35
8	In my workplace the chances of being involved in an accident are quite large.	E27
9	This installation has a 'no-blame' culture.	B132/D48
10	Mistakes are corrected without punishment and treated as a learning opportunity.	F133
	One or more of the above items contribute to the 'Trust', 'Learning organisation', 'Industrial relations and job satisfaction' SCMM elements. Also, perceived attitudes to H&S (whether those of self, colleagues or management) and safety behaviour are aspects that aid definition of the five levels of the SCMM.	
	Safety priorities	
1	I aim to reduce the risks at home.	F26
2	I take care of my family's safety at home.	F27
3	I am careful at home.	F28
4	I assess the risks before acting at home.	F29
5	I am careful to avoid accidents at home.	F30
	The above items may help indicate whether employees are applying the H&S lessons from the workplace to their non-work activities and those of their families. Positive responses may be indicative of an organisation at a higher level of safety culture maturity.	

5.1 ORGANISATIONAL MATURITY - QUESTIONNAIRE SELECTION

When all similar items are added to those included in Table 5.1, the total breakdown against the six questionnaires is as follows:

Code	Questionnaire	No. of items / total 'main' items
A	Health and Safety Climate Survey Tool	35/ 72
B	Offshore Safety Questionnaire [OSQv1]	25/ 153
C	Offshore Safety Climate Questionnaire [OSQ99]	27/ 80
D	Computerised Safety Climate Questionnaire [CSCQ]	16/ 49
E	Loughborough Safety Climate Assessment Toolkit [LSCAT]	25/ 44
F	Quest Safety Climate Questionnaire [QSCQ]	34/ 319

The breakdown of the combined item set appears to indicate that Questionnaires A and F have the greatest number of items identified as being potentially able to assist in the identification of organisational maturity. It is also noticeable that the ratio of such items against total number of 'main' items is far higher for Questionnaire A than for Questionnaire F.

The reader is cautioned against placing too much emphasis on the above finding. When investigating organisational maturity there are a number of issues that need to be considered. These are outlined below:

Objectivity of the selection process

The selection of a set of items to assist in identifying organisational maturity is not a totally objective process. The set described here has been selected by the Guide's authors; others might not have selected certain items for inclusion in the set, but they could also have added additional items.

Lack of validation

The selection process has not included any validation of the items selected. The rationale for selection is as described at the end of each section of Table 5.1.

Variable coverage of elements of the SCMM

Some elements of the SCMM are better addressed by existing questionnaire items than are other elements. This is in terms of both depth of coverage (number of items) and potential strength of relationship. All ten elements - 'Management commitment and visibility', 'Communication', 'Productivity versus safety', 'Learning organisation', 'Safety resources', 'Participation', 'Shared perceptions about safety', 'Trust', 'Industrial relations and job satisfaction', 'Training'] - are addressed but to varying extents. 'Management commitment and visibility' and 'Shared perceptions about safety' are the elements that appear to have the largest numbers of related items.

Difficulty in linking to levels of maturity

It is more difficult to link items to specific defining aspects of the different levels of safety culture maturity. However, some items have been identified that could contribute to identifying:

- management and workforce perceptions of accident causation and actions taken to prevent accidents
- perceived attitudes to health and safety (self, colleagues, management)
- safety behaviour
- application of health and safety lessons from the workplace to non-work activities and those of family members

Visibility of defining aspects of safety culture maturity

It is debatable whether all of the defining aspects of the different levels of maturity (as described in Part 1, Section 1.6) would be visible to those responding to questionnaires and/or reflected in their attitudes and behaviours, and thus in their responses. For example, is it reasonable to expect the frontline workforce to be aware of whether '*Safety performance is actively monitored using all data available*' or if their organisation '*… uses a range of indicators to monitor performance but is not performance-driven, as it has confidence in its safety processes'*? The defining features of the five levels are such that Levels 1, 2 and 3 might be expected to be more readily identifiable from questionnaire responses than Levels 4 and 5.

Lack of 'across-all-levels' items

Any expectation that responses to a particular item might identify whether an organisation is at Level 1, 2, 3, 4 or 5 in relation to a certain aspect, is considered unrealistic. It is more likely that the following situation would be found:

- Item A distinguishes between Level 1 (low score) and Level 3 or higher (high score). If a high score is obtained it is not possible to determine whether an organisation is at Level 4 or 5, only that it has at least reached Level 3.

Variation in workforce/ supervisor/ manager response

Items that may assist in identifying organisational maturity will not only be of the form that produces overall response ratings. For example, in looking at accident causation and prevention, there is a need to distinguish between frontline workforce/ supervisor/ manager scores and the related attitudes and behaviours these describe. It should then be possible to identify which of the five maturity levels has defining aspects relating to accident prevention/causation that most closely corresponds to the situation encountered.

Inclusion of customised items

None of the questionnaires were designed with the aim of identifying organisational maturity. Where it is considered important to pursue this aim via the use of a survey questionnaire, it is suggested that inclusion of a limited set of new items - specifically designed to investigate organisational maturity - might be of benefit.

The reader is referred to The Keil Centre's report for further information on establishing the current level of safety culture maturity (within an organisation as a whole or at a particular site), and also on identifying the actions required to improve the prevailing culture (Fleming, 1999).

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