Human & Organisational Factors in the Electricity Sector – High Level Principles

Note

HSE's definition of Human Factors is *the environmental, organisational and job factors, and human and individual characteristics, which influence behaviour at work in a way which can affect health and safety*. This definition includes three interrelated aspects that must be considered: the job, the individual and the organisation. "Behavioural safety" is used as short hand for the wide range of initiatives and programmes designed to influence workers motivation and ability to make decisions and act in way that ensures safety.

Introduction

There has been a large uptake of "behavioural safety" approaches over the past decade in a wide range of industries including the electricity sector. There is a wide range of behavioural safety programmes available but they generally involve the definition of safe/unsafe behaviours, observations of behaviours by trained observers and feedback/reinforcement of behaviours.

It is recognised that management and organisational factors have a large influence on accidents and incidents, either directly or through their impact on the behaviours of employees. Good behavioural safety programmes get to the heart of underlying influences and change these.

Potential benefits of such programmes:

- management demonstrate their commitment to improving safety;

- the workforce and management are actively talking to each other about safety issues;

- there is an increased profile of health and safety within the company;

- there is an increased visibility of management in the workplace;

- it potentially leads to improved employee engagement in safety;

- managers and supervisors learn to react promptly to unsafe acts (and have a legitimate mechanism for doing so);

- managers and supervisors potentially improve their safety leadership;

Potential pitfalls

In justifying behavioural interventions, it is often claimed that 70-80% of incidents are caused by 'human error'. However, managers often see the 'human' in human error as referring to front line personnel. Behavioural safety interventions need to go beyond the behaviours of front line staff.

A focus on individual operators ignores latent conditions that underlie incidents and implies that incidents can be prevented simply by operators "taking more care". However, this is not a strategy which can be effective in dealing with hazards about which workers have no knowledge and which can only be identified and controlled by management.

It is important to consider exactly which aspects of "health and safety" a behavioural intervention may be able to influence.

Behavioural safety interventions can sometimes be introduced in isolation from other safety initiatives.

Many supporters of behavioural safety programmes state that large improvements in safety have been made in the past decade or so in engineering and safety management systems and that new approaches are required to encourage further improvement. Although large advances have been made in these areas, major accidents are still occurring due to failures in these aspects. It is therefore not appropriate to conclude that we have 'solved' engineering causes of accidents, nor to assume that no further focus on management systems is required. The Step Change initiative in the offshore oil and gas industry acknowledges that: '*addressing behaviours must not be seen as an alternative to ensuring that adequate engineering design and effective safety management systems are in place' (Step Change, 2000, p.5).*

There is a danger that behavioural programmes may draw resources and attention away from other health and safety issues. Behavioural interventions should be seen as an integrated part of a robust health and safety management system.

Organisations embarking on behavioural programmes should retain a balanced approach and consider whether a behavioural intervention is right for their company at any particular time;

Before introducing a behavioural safety programme

Cultural or behavioural interventions will only be successful if engineering, technical and management systems are in place and working well. Therefore, before a behavioural safety programme is introduced, companies need to ensure that they have satisfied the following conditions:

- all hazards have been identified;
- human performance issues have been identified and managed (particularly in relation to safety critical roles and activities);
- the "hierarchy of control" has been applied to prevent the realisation of identified hazards, or minimise their consequences should they occur;
- the site has the required engineering, operating and maintenance capability and experience (including appropriate staffing levels);
- accurate operating procedures are available for all eventualities, including process upsets and emergencies;
- operators are fully prepared to deal with all conditions. This will include identification of training needs, training, assessment, rehearsal and re-assessment. This training should not just provide the minimum knowledge required to operate the plant. This will help to manage 'residual risk' arising from hazards that were not identified, or effectively addressed;
- lessons have been learnt from site, company and industry experience;
- succession planning ensures that corporate knowledge is retained;
- safety management arrangements and risk control measures have been reviewed to ensure that they remain usable and relevant.

Timing

Timing is important. Once technical and systems issues have been addressed, the company needs to ask whether a behavioural approach is the right approach at this time. Only when the technical and

systems issues have been successfully addressed can it be assumed that accidents are due to cultural or behavioural factors. In order for a behavioural intervention to prosper, there are several aspects that must be considered, including that:
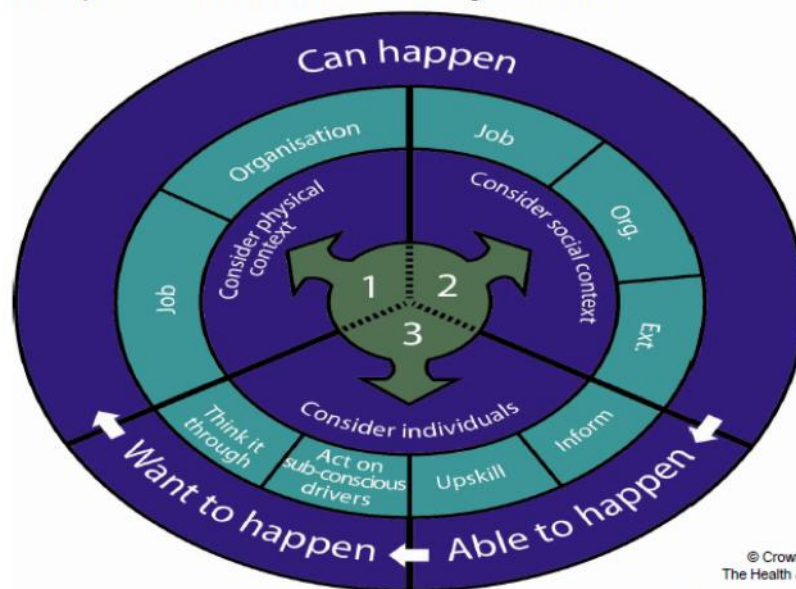
- there exists an appropriate balance between production and safety;
- there is visible and real management to health and safety;
- there is management commitment and the resources to see it through;
- there is a high level of trust between management and employees;

Key principles

The Health and Safety Laboratory
"**Make it Happen**" Model for Behaviour Change

The model explains the influences on risk taking behaviour:

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- Management and organisational factors have a large influence on accidents and incidents, either directly or through their impact on the behaviours of employees;
- The minimum requirement for changing behaviour is that the target audience has the capability (they are able to change behaviour), they are motivated (want it to happen), and there is the opportunity for behaviour change to occur (that it can happen);
- Behavioural safety interventions need to go beyond the behaviours of front line staff;
- It is important to consider exactly which aspects of "health and safety" a behavioural intervention may be able to influence;
- Behavioural safety interventions should not be employed in isolation;
- There needs to be a management commitment and the resources to see such a programme or intervention through;
- There needs to be a high level of trust between management and employees;

- Such a programme is not a one-off exercise, but a new way of working that must be maintained for any positive results to be sustained;
- Not all interventions are completely successful in their main aim. High expectations may lead to later disillusionment;
- Be clear about what you want to achieve and how you will know that you have achieved it;
- Pilot the intervention (e.g. to ensure that the approach is workable, that the facilitators/ observers understand what's required and that the appropriate data is being recorded);
- Behavioural interventions are only one aspect of 'human factors';
- Behavioural safety programmes are only one tool in the safety practitioners' toolbox;
- Know the limits of such interventions and prepare the ground beforehand;
- Talk to other similar companies/trade associations about their interventions and experiences;
- Listen to your employees and use the process to improve dialogue – involve employees early in the choice of programme. Engaging with the workforce is vital;
- Make the language, style etc. of the programme your own (off-the-shelf packages may not be appropriate for your needs);
- Use strong on-site facilitators – the success of such interventions is greatly helped by personable, experienced and respected site personnel as facilitators;
- Ensure that the focus is on the root causes of behaviours;
- On major hazard sites, don't neglect process safety; (beware 'what gets measured gets done');
- Share knowledge with peers;
- Learn from past incidents;
- Managers at all levels need to demonstrate good leadership;

Further reading

1. Kletz, T. (2001). Learning from accidents. Butterworth-Heinemann Ltd, Oxford. ISBN 0 7506 4883 X

2. Hopkins, A. (2000). Lessons from Longford: The Esso Gas Plant Explosion. CCH Australia Ltd, ISBN 1 86468 422 4

3. Step Change (2000). Changing minds: a practical guide for behavioural change in the oil and gas industry. http://stepchangeinsafety.net/stepchange/News/StreamContentPart.aspx?ID=540

Thanks to HSL for the use of their Make it Happen graphic.