A Unique Approach to Human Factors

HFL Risk Services has developed a Human Factors Masterclass designed to introduce companies to the benefits of including this crucial element in process safety management and risk assessment activities.

Our approach can be tailored to suit the needs of any organisation, whatever the size or complexity. It ensures that the resources deployed are appropriate, proportionate and specific to your business needs.

Participants will learn how to:

- Use available techniques to determine the criticality of processes and plant with respect to human performance
- Assess critical activities and put measures in place to improve performance
- Document the process in a form suitable for submission to the regulators

The Masterclass takes the form of a staged programme of work, designed to draw on the experience of cross-functional teams within a series of facilitated workshops. By working specifically on your processes in this way, not only do participants gain knowledge and understanding of how to apply the techniques, but your company benefits from a solution too – the human factors that are critical to safe operation are identified, allowing additional measures to be put into place, as required.

hfl risk services

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Human Factors Assessments

Fact: Human Failure Plays a Role in 80% of all Accidents

Human factors refer to environmental, organisational and job factors, and human and individual characteristics, which influence behaviour at work in a way which can affect health and safety.

Human performance has been found to have contributed to catastrophic incidents such as Bhopal, Three Mile Island and, closer to home, Piper Alpha. Yet, it is a facet of risk management which is often overlooked by companies of every size.

But human factors are not random; there are patterns to them. Given that the factors influencing human performance can be identified, assessed and managed, then potential human failures can also be predicted and managed.

Avoid the Pitfalls

The HSE has identified the following pitfalls in major hazard sites in relation to human failure:

- Treating operators as if they are superhuman
- Assuming that operators will always be present, detect problems and take appropriate action immediately
- Assuming that people will always follow procedures
- Training operators in the use of equipment, but not in the reasons why procedures are in place in order to prevent major accident hazards. Training of this type will not prevent slips, lapses or violations, only mistakes
- Stating that operators are highly motivated and so not prone to unintentional failures or deliberate violations
- Inappropriate application of techniques, such as detailing every task on site and therefore losing sight of targeting resources where they will be most effective

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RISK ASSESSMENT

Errors, Mistakes and Violations

For COMAH sites, identification of human factors is an essential part of the risk assessment process. Site operators must understand which activities are critical to safe operation and what can be done to optimise human performance to protect people and the environment.

Remember, we all make mistakes irrespective of how motivated we are to do the right thing. But failures are more serious for jobs where the consequences of errors have the potential to cause harm to people, the environment – or the business.

The good news is that human errors are largely predictable and can be managed. Our team of highly-skilled consultants can show you how.

There are three types of human failures which could lead to major accidents:

Errors

Errors are actions which are not intentional, for example forgetting to do something during a routine task. They therefore have particular relevance to operations and maintenance.

Mistakes

The difference between a mistake and an error is that a mistake is carried out intentionally; although the member of staff generally believes he is doing the right thing. This is dangerous in that this type of action can lead to miscalculations or misdiagnoses of situations. An example of this type of behaviour is the application of familiar procedures to unfamiliar situations.

Violations

There are different types of violation, the most severe of which is sabotage (but thankfully this is exceptionally rare). Although violations are deliberate, the reasons behind them are generally well-intentioned. Often a member of staff will ignore procedures or take shortcuts in a desire to complete a job in a timely manner despite opposing circumstances.

'Routine violations' often become accepted as 'the norm' within a staff peer/work group, which is a danger in itself as this then becomes acquired knowledge passed from worker to worker.

'Exceptional violations' on the other hand only occur when something goes wrong in unpredicted circumstances – e.g. in an emergency situation.

'Situational violations' occur as a result of factors dictated by the worker's immediate work space or environment (physical or organisational).

The Job, the Individual, the Organisation

In simple terms, human factors is concerned with:

- The job – what people are being asked to do
- The individual – who is doing it
- The organisation – where they are working

The job itself

Many aspects of the job itself can contribute to the likelihood of human failure – the nature of the task, the workload, the working environment, the design of displays and controls and the role of procedures. Tasks should be matched to the physical and mental abilities and limitations of people, taking into account perception, attention and decision-making requirements.

The individual

The individual's personality, skills, competence, attitude and perception of risk should all be evaluated. You will be unable to change someone's personality, but other characteristics such as skills or attitudes may be changed or enhanced.

The organisation

Resources, work patterns, communication, leadership and the culture of the workplace all have a considerable influence on individual and group behaviour and as such should be considered in the design of jobs.

HUMAN FACTORS ASSESSMENTS

Managing Human Failures

Common mistakes made by major hazard sites include:

An imbalance between hardware and human issues and a focus on engineering

A site may have installed a safety-critical alarm system and ensured that it is fully functioning. This, however, becomes redundant if the operator does not respond in a timely and effective manner.

Focusing on the human contribution to personal safety rather than to the initiation and control of major accident hazards

Safety is often measured in lost-time injuries (LTIs). Personal injuries are not a precursor or accurate predictor to major accidents. Performance indicators related to the site risk assessment are a far better method of measurement. They should measure not only the performance of the control measures, but also how well the management system is monitoring and managing them.

Focusing on 'operator error' at the expense of 'system and management failures'

All too often, blame for accidents is directed at frontline operators. However, rather than being the main instigator of an accident, operators tend to be the inheritors of system defects created by poor design, incorrect installation, faulty maintenance or bad management decisions.