

# Managing the Human Contribution to Risk at Major Hazard Installations

## 如何管理有重大危害隱患的裝置的人為風險

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### Abstract

The Control of Major Accident Hazard Regulations 1999 (COMAH) apply to any establishment in the UK that has certain quantities of 'dangerous substances' (e.g. 200 tonnes of Natural Gas; 25 tonnes of Chlorine etc). It requires that the Operator of the establishment take 'all measures necessary to prevent a major accident and limit their impact on people and the environment'. Where reliance has been placed on people as part of the risk control system, then there is an expectation that Operators will address human factor issues (especially human reliability) with the same rigour as technical and engineering measures. In practice, this means proactively seeking out and managing the human contribution to major accident initiation and escalation. To assist Operators with this duty, the Health and Safety Executive (HSE) have developed extensive guidance material and assessment methodologies for managing human factors (e.g. Human Factors Toolkit). This paper will outline a number of these techniques and explain HSE's approach to ensuring that the human contribution to risk is being properly controlled at major accident hazard installations across the UK.

### 摘要

在英國，任何場所如存有若干數量的「危險物質」（例如200公噸天然氣；25公噸氯氣等），便會受到《重大危害隱患管理規例1999》(COMAH) 所規管。該規例要求有關場所的營運者必須採取「所有必要措施以防止重大意外發生，並減低其對人和環境造成的影響」。風險管理系統如有部份環節是倚靠人力把關，營運者理應嚴謹處理人為因素方面的問題（特別是人員的穩妥可靠度），就如處理技術及工程事宜一樣。換句話說，營運者在實際工作上必須積極主動，找出及管理導致重大意外發生及惡化的人為因素。為協助營運者履行這方面的責任，英國健康及安全執行處(Health & Safety Executive)已就如何處理人為因素，制訂範圍廣泛的指引及評估方法（例如「人為因素處理指南」）。本文將概述這些處理技巧，並闡述英國健康及安全執行處如何確保全英國的具有重大危害隱患的裝置，在人為風險因素方面得到妥善管理。

### Biography

Nick Dickety is a Human Factors Specialist Inspector with the Health and Safety Executive (HSE) and has over 15 years' experience in the field of human factors (HF). Nick is a Registered Member of the Institute of Ergonomics and Human Factors (IEHF) and has carried out research and consultancy for HSE in a wide range of high hazard industries including railways, chemical, oil and gas. Nick has been providing HF support to HSE's Gas & Pipelines Unit since 2004. His current work profile includes safety report assessment, inspection/enforcement activity and support to accident investigations using analytical investigation techniques.