MAINSTREAM RESEARCH NEWS

THE NEWSLETTER FOR HSE'S S&I PROGRAMME

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☐ DRAFT HSC/E STRATEGIC RESEARCH OUTLOOK (SRO) 2003 - NOW AVAILABLE FOR COMMENT ON HSE'S WEBSITE

A draft version of the document 'HSC/E Strategic Research Outlook 2003' was published on 11 October 2002 on HSE's website at http://www.hse.gov.uk/research/sro2003draft.htm .

The document offers a guide to HSE's research activities and provides information on the broad spectrum of issues and topics, including new and emerging issues, on which HSE expects to carry out research, either now or in future years.

The draft document has been made available now in order to give people the opportunity to comment on its contents and to provide constructive feedback. The final version of the document will be published in February 2003

This will be the last annual edition of the SRO. Thereafter, the document will be published triennially, starting in 2004, to coincide with the publication of the HSC/E Strategic Plan.

HSE is in the process of reorganising its internal structures and mechanisms, including the way we identify research needs. Consequently, it has been decided to suspend the annual Competition of Ideas for 2003, which would have otherwise featured in the SRO when finally published. This will allow time to consider the most effective ways of ensuring that we remain open and receptive to new ideas.

Comments on the draft SRO should be sent in writing to: Simon Armitage, HSE Research Strategy Unit, PO Box 1064, Sheffield, S3 7YB. Email: simon.armitage@hse.gsi.gov.uk

☐ LINK TO INFORMATION ON HSE'S NUCLEAR SAFETY RESEARCH

Although details do not yet appear in this newsletter, information on HSE's nuclear safety research can be accessed from the HSE research homepage or via the following URL: http://hse.gov.uk/research/nuclear/index.htm

Research is a key business activity for HSE's Nuclear Installations Inspectorate (NII). This activity is the process of identifying, commissioning, and promulgating the results of research into nuclear safety issues, so that licensees and the NII have the scientific and engineering knowledge to make judgements about the adequacy of safety measures.

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☐ WHAT'S NEW?

☐ IMPACT OF PROCUREMENT METHOD ON HEALTH AND SAFETY PERFORMANCE IN CONSTRUCTION-TYPE ACTIVITY

(Contractor: CIRIA)

The method of procurement adopted for construction-type activity is thought to have a marked influence on how the project performs with respect to certain key indicators, for example: cost, time, quality or end-user satisfaction.

Recent work, such as the report of the Construction Task Force 'Rethinking Construction', has suggested that procurement methods based on cooperation and team building can give better performance than methods based on adversarial relationships.

The aim of this project is to examine whether a link exists between the procurement method used within construction-type activity and the project's achievements against indicators for both health and safety performance. As procurement through the use of contractors occurs beyond construction, e.g. in railway infrastructure maintenance, so the project will not be limited to the construction industry.

Depending on the outcomes of the project, it may allow HSE to influence health and safety performance by promoting particular procurement methods amongst clients.

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☐ SHIFTWORK AND BREAST CANCER: A CRITICAL APPRAISAL

(Contractor: Institute of Cancer Research)

A series of epidemiological studies providing evidence linking breast cancer in women with prolonged periods of working at night were published in 2001. A biologically plausible mechanism related to the suppression of melatonin was put forward as a potential explanation for these findings. HSE has also recently published the results of a very high profile investigation of cancer in workers at a Scottish semiconductor factory, which found a non-significant) excess of female breast cancer in a workforce where shiftworking is highly prevalent.

This project is being undertaken in order to critically appraise recent epidemiological studies for a risk of breast cancer from night work. The work will also examine the extent to which other factors, including those from outside the workplace, might account for, or help to explain, some of the findings.

The work will enable HSE to make an informed judgment on the basis of the current evidence, particularly as to whether the effect and its causal status are sufficiently well established to justify preventive efforts or whether further research is required to further clarify this issue.

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☐ METROPOLIS – A METROLOGY THEMATIC NETWORK

(Contractor: Health and Safety Laboratory)

The Metropolis Thematic Network is a European Communities network project funded under the 5th Framework Programme.

The network has been set up by INERIS in France with the aims of: strengthening European co-operation in order to accelerate the development of new methods and tools to improve the performance of measurement systems and their cohesion at European level; identifying and promoting state of the art techniques and methodologies, providing guidance on good metrology practice and disseminating information; and identifying gaps in knowledge and information and defining research to fill those gaps. In addition, the project will also form a feasibility study to examine the evolution of scientific networks. This will then be used to support the structuring of European research funding of this type.

The network is made up of 38 members and is structured as six work packages. The work will run for 2 years. Each work package tackles a problem associated with the study and science of measurement. HSE's Health and Safety Laboratory (HSL) is a member of work package 3, entitled 'on-line measurements and data transfer'. The work will support the efficient use of on line measurement systems, data transfer and data evaluation/presentation systems for environmental protection and sustainable development. The input from HSL will mainly be focused on the area of Geographical Information Systems (GIS).

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☐ WHAT'S NEW?

☐ TO IDENTIFY EXAMPLES OF BEST CURRENT PRACTICE IN REHABILITATING EMPLOYEES INTO WORK AFTER A PERIOD OF ILLHEALTH STEMMING FROM WORK RELATED STRESS

(Contractor: Institute for Employment Studies)

Stress-related problems are the second most commonly reported cause of occupational ill-health after musculoskeletal disorders.

It is widely thought that organisational factors play a significant part in contributing to employees' experience of stress. Therefore, it is important for the successful rehabilitation of an employee that employers implement the necessary changes to prevent a reoccurrence of the initial stressful situation that precipitated the illness and to minimise the negative effects of other stressors.

The aim of this research is to identify, from a diverse range of organisations, the various methods used in the rehabilitation of employees back into work following a period of absence due to ill health stemming from work-related stress. Methods with wide applicability will be particularly sought.

The effectiveness of the methods used by organisations will be evaluated and best current practice ascertained. A report will be produced from the work documenting at least 12 examples of current best practice.

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☐ MANAGING HEALTH AT WORK: RECORDING AND MONITORING OF INFORMATION ON SICKNESS ABSENCE INCLUDING WORK RELATEDNESS

(Contractor: Institute of Occupational Medicine)

Absence management is now an established tool, practised with varying degrees of enthusiasm and effectiveness across sections of UK business and public service. HSE's view is that managing absence should be a key and central part of managing all aspects of health in the workplace. It is pivotal to both the prevention of ill health and retention of sick and disabled people in employment. To support the current practices in absence management, HSE sees the need for an agreed structure and guidelines to help employers collect, classify and record sickness absence data. In particular, to identify potential work-related causes of ill-health in a way that is useful to businesses, especially SMEs, and to safety representatives and employees alike.

The aim of this research is to develop appropriate tools that could be integrated into simple health management systems used by SMEs to enable employers to measure sickness absence, and in particular work-related absence, more effectively. The tools would also help larger companies report on occupational health in their annual reports.

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☐ CIRCADIAN ADAPTATION OF OFFSHORE SHIFTWORKERS RETURNING TO DAY LIFE AT HOME

(Contractor: University of Surrey)

The offshore oil and gas industry operate a number of different shift systems. Workers have managed meal times, segregated shifts and daytime darkness for nightshift workers. This system is unique and requires management strategies and advice, which differ significantly from solutions derived from onshore practice. Data from previous studies has indicated that for a 14-day, 12 hour night shift (1800hrs to 0600 hrs), subjects eventually adapt completely. However, they are out of phase for at least the first 4 to 5 days of the night shift. This fast adaptation to night shift is in contrast to many onshore studies, which have shown that workers rarely adapt, even after weeks of night work. Very little information is available concerning shiftworkers' readjustment to home life.

This will be a four-leg study, carried out during winter and summer, to establish seasonal influences, and will investigate the physiology and behaviour of offshore workers, working 14 nights (1800 hrs to 0600 hrs) followed by 14 days at home. Shiftworkers will be monitored during their consecutive night work and on their return home using a circadian rhythm marker, together with sleep, light and activity measurements. The effect of treatment with light, to adapt to the home environment, will also be examined.

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☐ EXAMPLES OF RECENTLY COMPLETED PROJECTS

☐ APPLICATION OF QUANTITATIVE RISK ANALYSIS (QRA) IN OPERATIONAL SAFETY ISSUES

(Contractor: Det Norske Veritas Ltd)

The Control of Major Accident Hazards Regulations (COMAH) came into force in Great Britain in April 1999. The general duty under COMAH reg.4 requires that every operator shall take all measures necessary to prevent major accidents and limit their consequences to persons and the environment. This general duty is consistent with the well-known principle in the UK of reducing risks to a level that is 'as low as reasonably practicable' (ALARP).

This study has considered the use of risk assessment in HSE's operational decisions in the context of COMAH reg. 4. The research focused on the use of regulatory guidance, risk matrices and QRA to demonstrate compliance with the ALARP principle. These methods have been widely used by operators to demonstrate compliance with the ALARP principle in COMAH Safety Reports. Each approach has its strengths and weaknesses.

Comparison of the prevention, control and mitigation measures in place at an installation with those set out in a regulatory guidance document provides an indirect assessment of risk that gives some indication as to whether a minimum standard has been achieved. In order to demonstrate that risks are ALARP, it will normally be necessary to provide some limited risk assessment.

Risk matrices can be used to provide a ranking of risks so that the operator can identify the Safety Critical Events (SCEs), which may then constitute a 'representative set', and to identify those situations where the risks are definitely intolerable. The SCEs are then considered further so that risk reduction measures can be identified and prioritised.

The outputs from a QRA can be used to compare the risks directly with the published risk thresholds defined by the ALARP principle. Additionally, QRA can identify those events within the analysis that contribute most to the risk at any particular location or to any particular group of people. QRA can be linked with Cost Benefit Analysis (CBA) to provide an economic justification as to whether risk reduction measures should be implemented in order to demonstrate compliance with the ALARP principle. CBA encapsulates a series of complex and controversial issues, such as the value of a human life and the true business cost of a major accident. Such issues have to date prevented the widespread use of CBA explicitly as part of an ALARP demonstration. The report from this work, to be published shortly in HSE's Research Report Series, shows that CBA is a potentially powerful tool for determining whether risk reduction measures are necessary at an installation.

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☐ BEHAVIOURAL STUDIES OF PEOPLE'S ATTITUDES TO WEARING HEARING PROTECTION AND HOW THESE MIGHT BE CHANGED

(Contractor: Institute of Occupational Medicine)

It is commonly understood that noise exposed workers do not always wear hearing protection when they should. This is due to a range of physical, ergonomic and behavioural factors, which play a greater or lesser part depending on the circumstances of use.

This project was set up to investigate the nature of the problem and to identify ways in which worker behaviour could be modified so that they are more likely to wear hearing protection.

The work was carried out in two phases. In Phase 1, a range of companies were visited to assess the workers' use and acceptance of hearing protection and to determine what action management had taken to encourage its use. In Phase 2 of the work, examples of good practice were identified from the company visits and from the literature. These were then implemented into workplace intervention, which were carried out in four of the companies visited in Phase 1. The interventions covered a range of practical solutions, including providing suitable training and information, alternative types of hearing protection and coaching management in basic feedback and communication techniques for encouraging workers to modify their behaviour.

The report produced from this work, to be published in HSE's Research Report Series, discusses in detail the effectiveness of the interventions in the context of what might be reasonably expected for the size and available resources of the various companies involved in the study.

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☐ EXAMPLES OF RECENTLY COMPLETED PROJECTS

☐ MAPPING HEALTH HAZARDS AND RISKS ACROSS ASPECTS OF THE CONSTRUCTION PROCESS (Contractor: Institute of Occupational Medicine)

This work has examined the current state of knowledge of occupational health issues within a sample of companies in the construction industry and has considered the feasibility of applying the COSHH Essentials approach. The work has also examined the application of an audit-based approach to map health hazards across the construction process.

A sample of 12 companies from the construction industry was chosen to take part in this survey. The number of personnel on site varied from 3 to 70 permanent staff, and from 10 to more than 300 subcontractors.

All companies studied had health and safety policies in place with associated documentation, which was not subject to regular revision and so tended not to be used as an active source of information. Most of the companies had a full time safety manager (not permanently on site) who tended to visit on a cyclical basis. Many sites reported not having a safety representative, although two companies had site project managers with responsibility for safety. Usually, the responsibility for health and safety implicitly rested with line managers.

Accident reporting was most often by completion of details in an accident book. Three companies had specific systems in place to report on accidents. Accident data was rarely used to assess trends over time or in association with specific groups or tasks. Similarly, sickness absence reporting was patchy, and when recorded tended to be in terms of numbers of days lost. No available data existed on the proportion of absence attributable to work related factors.

Although there was a difference in the level and provision of safety management systems across the companies studied, there was little current emphasis on health based problems within the workplace. The employees within the companies also had limited understanding of the nature of occupational health problems associated with the tasks they may be undertaking. In general, there were no systems in place for reporting specific health concerns and no surveillance programmes to provide early identification of health problems associated with workplace exposures.

This study has indicated that a broad range of risks to health exists, associated with the construction processes examined. All sites visited had only limited controls in place in relation to the hazards observed. The need for simple and consistent systems to allow monitoring of data on work-related health within the industry was highlighted, as was the need for further education initiatives on work and health in the construction process. The industry is striving to achieve good practice in safety at work, but this is not yet established for health and may be due in part to the lack of understanding about the relationship between work and health.

A simple tool, based on the COSHH Essentials format, could be usefully introduced for specific aspects of the construction process. This could be incorporated into a simple recording format to be used to collect and collate baseline data on health in the construction industry.

The report from this work will be published shortly in HSE's Research Report series.

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☐ DIOXIN EXPOSURE FROM WORK-RELATED ACTIVITY

(Contractor: Lancaster University)

Following concern raised by the Department for the Environment, Food and Rural Affairs (DEFRA) about the potential for occupational exposure to polychlorinated dibenzo p dioxins and polychlorinated dibenzo furans ('dioxins'), HSE commissioned a survey of industrial workplace air. The report produced from this project also includes the findings of a previous study and includes the results of both static air monitoring and personal air sampling using portable equipment. Both systems have used polyurethane foam (PUF) to trap vapour phase contaminants and glass fibre filters for the particulate phase. Industries included in this study were those involved in aluminium and copper recycling, waste incineration and landfill operation. The study was designed to quantify occupational exposure via inhalation, occurring in a variety of industries, and compare these estimates to dietary intake and the Committee on Toxicity 'Tolerable Daily Intake' values.

The report from this work has been published in HSE's Research Report series as RR027 http://www.hse.gov.uk/research/rrhtm/rr027.htm

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☐ EXAMPLES OF RECENTLY COMPLETED PROJECTS

☐ AIR QUALITY MEASUREMENTS IN COMMERCIAL KITCHENS

(Contractor: Advantica)

The main objective of this work was to carry out air quality surveys in nine commercial kitchens and provide continuous monitoring of pollutants, such as carbon monoxide and nitrogen dioxide, as well as other relevant environmental parameters, such as relative humidity and temperature levels attained. The continuous monitoring of the pollutants not only provided an assessment of any peak levels but also an indication of personal exposure to low level background pollutant levels which have also been proven to have adverse health effects.

The kitchens surveyed varied in their characteristics (size, type of fuel, type of ventilation and the level of appliance usage), each of these being an important influence on the levels of contaminants generated. The standalone silent monitor employed for this survey was effective in being a suitable tool for obtaining reliable air quality measurements while normal kitchen activities took place. This was especially important in the case of commercial kitchens where the levels of activity and the usage of space are significant parameters affecting the feasibility of integrating a monitor into the kitchen.

The highest one-minute concentration recording taken for carbon dioxide was 67.5 ppm and 0.66 ppm for nitrogen dioxide. Overall, the levels of the contaminants generated in the nine commercial kitchens did not exceed the occupational guideline limits. The levels of recorded relative humidity and temperature varied considerably between the kitchens surveyed. The lowest temperatures were recorded in the early hours of the morning, when kitchens were not in use. The lowest recorded temperature was 9.8°C. Where the monitor was subjected to dry heat; the lowest humidity of 10% was recorded. Where steaming for long periods was carried out, humidity reached 89%.

The findings of this study show that the environment conditions in a commercial kitchen can vary considerably and are useful as an indication of the conditions that carbon monoxide alarms could be subjected to.

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☐ MANAGEMENT OF WORK-RELATED ROAD SAFETY

(Contractor: Entec UK Ltd)

In response to a number of road accidents involving at-work vehicles, an inter-agency Work-related Road Safety Task Group was established in May 2000, serviced by the Department for Transport, Local Government and the Regions (DTLR) and HSE. This group was established to consider the issue of work-related road traffic incidents. The Scottish Executive also wanted to establish the extent of work-related road safety practices and policies in organisations in Scotland, to inform the Scottish Road Safety Campaign and highlight examples of good practice.

HSE and the Scottish Executive have jointly funded this work to: establish the contribution of individual factors to driving behaviour and the implications for managing work related road safety; establish the extent to which road safety is considered a health and safety issue in Scottish workplaces; and identify and document good practice case studies of occupational road safety policy and procedures.

A review of the literature highlighted that: men were more likely to have accidents than women; the nature of accidents experienced by men and women were different; younger drivers were at greater risk than older drivers; there was a relationship between social deviance and violations and accidents; there was a decreased risk of accident involvement with experience; stress was associated with increased accidents; certain medical conditions increased the risk; and there were differences across ethnic groups.Information on the following topics was collected from a survey of Scottish workplaces: the extent and nature of driving activities; experience of road accidents; accident prevention; use of a safe driving policy and details the procedures; motives for implementing the policy; and perception of accident prevention policies and their effectiveness.

The findings from this study have been published in HSE's Research Report series as RR018 http://www.hse.gov.uk/research/rrhtm/rr018.htm . A model of good practice road safety risk management is presented. Case studies are included to demonstrate how organisations, large and small, and with different types of driving activities and vehicles, can implement an effective occupational road safety policy and associated procedures.

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☐ PROJECT LISTING

NEWLY COMMISSIONED PROJECTS: JULY - SEPTEMBER 2002		
Project No.	**Project Title**	**Project Officer**
Block 1 - Priority Programmes		
R33.103	Impact of procurement method on health and safety performance in construction type activity	Mr D Lamont. Tel: 0151 951 4818 donald.lamont@hse.gsi.gov.uk
R33.107	Evaluation of safety nets by modeling and experiment	Mr M Holden. Tel: 0151 951 3725 martin.holden@hse.gsi.gov.uk
R54.087	To identify examples of best current practice in rehabilitating employees into work after a period of ill health stemming from work-related stress	Ms N Williams. Tel: 020 7717 6593 nina.williams@hse.gsi.gov.uk
Block 2 - Work in the Major Hazards Industries		
R64.093	COMAH safety report regime – Evaluating the impact on new entrants. Soft data gathering survey.	Mr R Thomas. Tel: 0151 951 4823 richard.thomas@hse.gsi.gov.uk
R72.078	Technical support for the computer program MISHAP	Mr I Hirst. Tel: 0151 951 3526 ian.hirst@hse.gsi.gov.uk
4008	Safety culture in divers	Mr D Tee. Tel: 020 7717 6923 dave.tee@hse.gsi.gov.uk
4013	Critical evaluation of active pendulation control system	Mr B Ralph. Tel: 020 7717 6786 bill.ralph@hse.gsi.gov.uk
4020	Fluid structure interaction on dynamic response of pressure vessels and tanks subject to dynamic loadings	Mr D Tee. Tel: 020 7717 6923 dave.tee@hse.gsi.gov.uk
4022	Reliability based calibration of design code for suction anchors	Mr R Martland. Tel: 0151 951 3082 roland.martland@hse.gsi.gov.uk
4026	Management of seismic hazard in the North Sea	Mr D Tee. Tel: 020 7717 6923 dave.tee@hse.gsi.gov.uk
4027	Deck vibration spectra for jacket structures due to vessel impact	Mr D Tee. Tel: 020 7717 6923 dave.tee@hse.gsi.gov.uk
4030	Accident statistics for offshore units on the UKCS	Mr E Young. Tel: 020 7717 6926 eoin.young@hse.gsi.gov.uk
4031	SBV daughter craft and launch systems	Mr G Boothby. Tel: 020 7717 6921 george.boothby@hse.gsi.gov.uk
4032	Circadian adaptation in offshore shiftworkers returning to day life at home	Mr R Miles. Tel: 020 7717 6685 bob.miles@hse.gsi.gov.uk
4034	Review of the economic aspects of the ERTMS project team report	Mr D Tee. Tel: 020 7717 6923 dave.tee@hse.gsi.gov.uk
Block 3 - Compliance		
R43.087	Diesel fumes/particulates in mines – Phase 4	Mr M Williams. Tel: 0151 951 4866 mansel.williams@hse.gsi.gov.uk
R51.240	Investigation of modern mass spectroscopic techniques	Mr J White. Tel: 0114 289 2705 john.white@hse.gsi.gov.uk
R64.092	Development of an Enforcement Management Model (EMM) training package, suitable for use by Local Authorities.	Mr N O'Donnell. Tel: 020 7717 6432 nick.o'donnell@hse.gsi.gov.uk
R68.079	A study of the accident aetiology in the quarry industry	Mr R Pearce. Tel: 02920 263000 rob.pearce@hse.gsi.gov.uk
R72.077	The National Fairground Photographic Database	Mr G Howat. Tel: 0141 275 3000 gavin.howat@hse.gsi.gov.uk
R72.079	METROPOLIS – A metrology thematic network	Mr A Griffin. Tel: 0151 951 4674 adrian.griffin@hse.gsi.gov.uk
Block 4 - Mandatory Activities		
R46.084	The application of automatic data capture technologies	Dr J McGuinness. Tel: 020 7717 6414 john.mcguinness@hse.gsi.gov.uk
R51.237	Evaluation of currently used exposure models to define a human exposure model for use in chemical risk assessment in the UK	Dr J Delic. Tel: 0151 951 3593 julian.delic@hse.gsi.gov.uk
R53.193	The national register of workers exposed to radiofrequency radiation	Mr N Smith. Tel: 020 7717 6277 norman.smith@hse.gsi.gov.uk
R56.099	Development of medical informatics to gather information on work related ill health	Dr K Wiley. Tel: 020 7717 6289 keith.wiley@hse.gsi.gov.uk
R56.102	Shift work and breast cancer: A critical appraisal	Mr D McElvenny. Tel: 0151 951 3352 damien.mcelvenny@hse.gsi.gov.uk
R68.076	Managing health at work: recording and monitoring of information on sickness absence including work relatedness	Ms J Manson. Tel: 020 7717 6229 june.mason@hse.gsi.gov.uk

☐ PROJECT LISTING

NEWLY COMMISSIONED PROJECTS: JULY - SEPTEMBER 2002		
Project No.	**Project Title**	**Project Officer**
Block 4 - Mandatory Activities (Cont.)		
R68.078	Contractorisation – Aspects of health and safety in the supply chain	Ms C Grainger. Tel: 020 7717 6992 carol.grainger@hse.gsi.gov.uk

RECENTLY COMPLETED PROJECTS: JULY - SEPTEMBER 2002		
Project No.	**Project Title**	**Project Officer**
Block 1 - Priority Programmes		
R31.084	PTO shaft guards. Development of strength tests for tractor/machine 'interface standards'.	Mr D Butter. Tel: 01159 712800 david.butter@hse.gsi.gov.uk
R33.100	Assessing the contribution of building materials and components to safety risks on site.	Mr M Dryburgh. Tel: 020 7717 2150 mike.dryburgh@hse.gsi.gov.uk
R36.081	Review of workplace control measures to reduce risks arising from the movement of vehicles	Mr N Ratty. Tel: 0161 952 8200 nick.ratty@hse.gsi.gov.uk
R54.081	Review of existing supporting scientific knowledge to underpin standards of good management practice for key work related stressors (Phase 1)	Ms N Williams. Tel: 020 7717 6593 nina.williams@hse.gsi.gov.uk
R55.083	Court judgements for WRULD and HSE regulations and guidance	Dr C Mackay. Tel: 0151 951 4565 colin.mackay@hse.gsi.gov.uk
R55.095	Manual handling in the food and drink industries – Injury rate v weight of unit load lifted	Mr R Morgan. Tel: 0141 275 3000 richard.morgan@hse.gsi.gov.uk
R56.088	Mapping health hazards and risks across aspects of the construction process	Ms N Elvy. Tel: 020 7717 2101 nichola.elvy@hse.gsi.gov.uk
R67.141	Virtual reality for training in the construction industry	Mr M Abrar. Tel: 020 7717 2268. mohammad.abrar@hse.gsi.gov.uk
R78.006	Prototype expert system for pedestrian slipping	Mr R Morgan. Tel: 0141 275 3000 richard.morgan@hse.gsi.gov.uk
Block 2 - Work in the Major Hazards Industries		
R04.079	Fire risk assessment for workplaces containing flammable substances	Mr J Sawyer. Tel: 0151 951 4665 john.sawyer@hse.gsi.gov.uk
R04.081	Methodology for on-site ignition probability	Mr J Council. Tel: 0151 951 4551 john.council@hse.gsi.gov.uk
R05.078	Pyrotechnics and propellant hazard during manufacture	Dr R Merrifield. Tel: 0151 951 4804 roy.merrifield@hse.gsi.gov.uk
R31.062	Fracture properties of high strength steel chain.	Mr I Paterson. Tel: 0151 951 4036 iain.paterson@hse.gsi.gov.uk
R32.083	Evaluation of non-destructive testing instruments for wire ropes	Mr M Williams. Tel: 0151 951 4866 mansel.williams@hse.gsi.gov.uk
R63.063	Evaluation of proposed changes to separation distances for Mode A firework stores	Mr C Raymond. Tel: 020 7717 6288 chris.raymond@hse.gsi.gov.uk
R64.059	A strategic approach to the provision of national coordination of LA based H&S Enforcement Officer training	Ms M Buchan. Tel: 020 7717 6441 moira.buchan@hse.gsi,gov.uk
R67.150	The application of GOTA analysis in hazardous industries	Mr M Anderson. Tel: 0151 951 3495 martin.anderson@hse.gsi.gov.uk
R72.058	Application of QRA in operational safety issues	Dr T Maddison. Tel: 0151 951 4062 tom.maddison@hse.gsi.gov.uk
R72.063	User support for, and validation of, the computer programs MISHAP and PIPER	Mr I Hirst. Tel: 0151 951 3526 ian.hirst@hse.gsi.gov.uk
R72.075	Classification of railway schemes RI 1 revised approval process – Project 1	Eur Ing T Davies. Tel: 020 7717 6620 toyin.davies@hse.gsi.gov.uk
R72.076	Classification of railway schemes RI 1 revised approval process – Project 2	Eur Ing T Davies. Tel: 020 7717 6620 toyin.davies@hse.gsi.gov.uk
R73.020	Uncertainties of risk analysis of a chemical establishment	Mr D Carter. Tel: 0151 951 4570 dave.hid.carter@hse.gsi.gov.uk
R75.049	Flow rate model for pipeline incidents	Mr D Carter. Tel: 0151 951 4570 dave.hid.carter@hse.gsi.gov.uk
3598	Phase 2: QRA uncertainties	Mr S Schofield. Tel: 0151 951 3139 stan.schofield@hse.gsi.gov.uk
3784	Acceptable risk levels for use in hydraulic design standards	Mr M Birkinshaw. Tel: 020 7717 6775 malcolm.birkinshaw@hse.gsi.gov.uk

☐ PROJECT LISTING

RECENTLY COMPLETED PROJECTS: JULY - SEPTEMBER 2002		
Project No.	**Project Title**	**Project Officer**
Block 2 - Work in the Major Hazards Industries (cont.)		
3858	Long life corrosion fatigue of high strength steel plates	Mr A Stacey. Tel: 020 7717 6774 alex.stacey@hse.gsi.gov.uk
3901	Compilation of ISO19902 fixed structures and associated standards	Mr M Birkinshaw. Tel: 020 7717 6775 malcolm.birkinshaw@hse.gsi.gov.uk
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