

MAJOR HAZARD INDUSTRIES

Introduction

112. Much of HSE's work is about the management of health and safety in high hazard industries and the control of major hazard events - the prevention of major incidents where the health and safety of many people, whether workers or members of the public, is affected.

113. Progress with published plans during 2003/2004 follow. Sectors covered are those where the control of major hazards is critical, for example, gas conveyance and onshore major hazard pipelines, chemical installations covered by the Control of Major Accident Hazards Regulations (COMAH), explosives and the railways, mining, offshore and nuclear industries.

HSC policy statement on permissioning regimes

114. Work continued to publicise and embed the HSC policy statement on permissioning regimes published in March 2003. This set out a benchmark for the review of existing permissioning regimes and for considering proposals for new ones. A key event in publicising the policy statement was a joint seminar between HSE and the Institution of Mechanical Engineers in October 2003. This gave industry practitioners an opportunity to share their views and experiences on how to improve the effectiveness of safety cases and safety performance in industries subject to permissioning regimes.

115. The seminar coincided with HSE publishing a research report identifying available evidence on the impact of safety case regimes. The report by Vectra says that, overall, industry sees safety cases as more beneficial than burdensome and supports their philosophy and approach, particularly the goal setting style. Other benefits identified include the introduction of systematic management systems to control risks and the greater involvement of staff and safety representatives in the process. Both are seen as being highly effective in reducing major incidents.

A national target for major hazards

116. Work has now been completed on the development of a suite of targets, based on precursor events (an event or group of events the occurrence of which might indicate failures in control systems relevant to the control of risks from a major hazard - as such they are the kind of event in the possible chain of causation and avoidance which could be a key element in the prevention of catastrophic outcomes) which provide a suitable measure of HSE's efforts to regulate and improve performance in the major hazards sector. They are summarised in the table below which defines each target, sets out baselines and reports on 03/04 performance.

117. The targets represent the diverse range of industries in the major hazards sector and have been agreed with key stakeholders. A single aggregated indicator has not been pursued because of the complexity of bringing together the different data series.

118. The key steps taken to develop the targets include:

- establishing a common baseline year - 2001/02;
- agreeing improvement targets with relevant sector players;
- for each target, determining performance trends over the medium term from which target trajectories can be determined.

119. Original proposals to use a set of seven indicators for the rail sector have been overtaken by the adoption of the Rail Safety and Standards Board (RSSB) 'rail safety risk index' (for the national rail network) which employs a wide range of relevant pre-cursor metrics, weighted to represent the potential severity of outcome for each type and combined into a single value. RSSB and HSE have agreed a target to reduce the overall risk value by 10% annually.

120. Over the course of the shadow running year data sensitivity has been evaluated and trajectories and targets adjusted in the light of experience. The results will be built into the Technical Note for the Health and Safety PSA for 2005-2008.

Delivery of the Major Hazards Target 2003 - 2004

	Base Yr 2001/02	2002/03	Quarter 1	2003/04 Quarter 2	Quarter 3	Quarter 4	Total
Rail indicators*							
Signals passed at danger	172	143	36	36	Series discontinued and replaced with Safety Risk Index		
Track compromised	627	577	62	62			
Derailments	63	56	17	15			
Acts of vandalism	921	741	113	72			
Level crossing incidents	182	176	50	77			
	1965	1693	278	262			
Safety risk index		101.7	96	94	86.9	Unavailable	86.9
Nuclear indicators							
Reports made to HSE by licence holders which indicate a challenge to nuclear safety	143	156	22	24	27	28	101
Offshore indicators							
Major and significant hydrocarbon releases	113	85	26	31	33	23	113**
Onshore indicators (COMAH)							
Relevant RIDDOR reportable dangerous occurrences, eg unintentional explosions, failure of pressure systems	179	155	39	36	38	34	147

**The reporting arrangements to HSE are reliant on the industry and there is a reporting lag of one quarter. The outturn for quarter 3 is therefore quoted for the End of Year figures.*

***03/04 performance to date is an unwelcome 'hiccup' in the four-year downward trend in major and significant release numbers which up to this year had seen release numbers reduced by 38% since 1999/2000. However it is becoming clear that downsizing and cost reduction measures require an increase in efforts by industry, supported by HSE, to secure improved performance.*

In spite of the difficulties in achieving the projected reductions we have decided to maintain PSA targets, and industry has given a commitment to work towards them. Actions already taken to improve performance include:

- *targeting worst performing companies, taking appropriate action, including enforcement to ensure implementation of the agreed remedial programmes;*
- *continued partnership working between HSE and industry experts to refine understanding of causation and remedies and apply this knowledge to field operations;*
- *extension of programme working to deal with all safety critical aspects of installation integrity under a full-time programme manager. This work is well advanced and has met with a positive response from industry TUs and relevant Members of Parliament;*
- *active stakeholder engagement – including with overseas agencies and DTI – to promote concerns and remedies at all points of interest:*
 - *the setting up by UKOOA of a Release Reduction Work Group to support the campaign with representation from all operating companies;*
 - *the production by the Release Reduction Work Group of a 'Reducing Leaks - Raising Awareness' video which was shown to the workforce on all installations;*
 - *provision of staff to support the various work groups set up to formulate good practice in different problem areas.*

Several individual companies also set up their own internal release reduction campaigns to operate in parallel with the HSE campaign.

Nuclear

What we aimed to achieve

121. HSE is responsible for regulation, through licensing, of the nuclear industry to ensure protection of the public and workers. There are 40 nuclear licensed sites in Great Britain, spread throughout the country. The licence conditions attached to a nuclear site licence identify the areas that need to be managed effectively to ensure nuclear safety. Nuclear licensees track numerous indicators and formally report to HSE those that have an impact upon safety. HSE's Nuclear Safety Directorate (NSD), in discussion with the industry, is developing performance indicators based on licence conditions which can be used, inter alia, as a basis for monitoring safety performance and to enable NSD to target its resource to improve nuclear safety in Great Britain. Progress with these indicators can be found in 'A national target for major hazards' on page 27.

Progress

122. Through its inspection and assessment activities, NSD continued to monitor licensees' compliance with the conditions attached to their site licences. This information is captured and analysed as part of NSD's Integrated Enforcement Strategy and fed into its Regulatory Review Process in order to target resources effectively. As part of HSE's major hazard national targets activities, NSD has also been recording and reviewing information on events and incidents reported by its licensees that relate to licence compliance issues and challenges to safety functions. For the former, a benchmark exercise was carried out on all sites for 2003 and inspectors are discussing with their sites strategies for reducing the number of licence-condition related issues in 2004/5. With respect to challenges to safety functions, these will continue to be analysed and reported upon to HSE centrally in order to meet the target of a 5% reduction in such 'accident precursors' by 2005/6.

Ensure that licensees and others we regulate in Great Britain have no major nuclear accidents

123. We have secured our aim of no major nuclear accidents in 2003/04. To achieve this, NSD has put considerable effort into developing its Integrated Enforcement Strategy which involves inspecting all licensed sites to set programmes. 731 site visits have taken place, along with 46 planned emergency exercises. Despite emergent work exceeding available resources, 257 assessments and ten Periodic Safety Reviews were completed within timescales negotiated with licensees to minimise safety and operational risks.

124. Also, the NSD 2003/4 Inspection Strategy, approved by NSD's Management Board, consisting of three discrete programmes has been implemented. As the reactive/new issues element of the Strategy, Programme 2 was particularly heavy during the period and this forced reductions in Programmes 1 (Licence Condition 17 Quality Assurance Inspections) and 3 (Shadowing of Licensees audit processes), allowing Programme 2 to be fully resourced.

A snapshot of other activities 2003/04

Ensure that those we regulate bring about a reduction in the hazard potential from radioactive wastes and to ensure the safe decommissioning of redundant nuclear facilities

- Inspectors had regular discussions with other government departments on the draft of the Nuclear Reform Bill to ensure HSE/NSD's comments were incorporated in the draft Bill. The Bill has now been issued and is progressing through Parliament.

- NSD has set up a new Unit to interface with the Department of Trade and Industry's (DTI's) Liabilities Management Unit. This is considering the licensing implications of the Nuclear Decommissioning Authority (NDA), planned to start work on 1 April 2005. NSD has also set up a project unit charged with the task of getting those decommissioning and radioactive waste projects which contribute most to safety to the top of the priority list.
- Two Environmental Statements were submitted and consents granted for Hinkley Point A and Bradwell power stations. Two pre-application opinions were issued for Calder Hall and Chapelcross power stations.
- Progress has been made with British Energy (BE) responses to the 2001 Quinquennial Review report. There has been some slippage in the responses as BE is integrating this work with similar work needed as a result of its restructuring agreement with the Government.
- The Atomic Weapons Establishment (AWE) continue to make satisfactory progress against the Approved Decommissioning Plan.

Ensure licensees protect workers and the public from ionising radiation and meet the targets set out in Revitalising Health and Safety (RHS)

- To confirm that radiation doses to workers and direct shine doses to the public are As Low As Reasonably Practicable (ALARP) at all nuclear licensed sites, a project to identify licensees performance for Ionising Radiations Regulations has been set up by NSD. This project will incorporate information submitted by licensees and the outcomes arising from NSD's planned inspection programmes on worker dose and direct shine. The information collected by NSD will be used to evaluate and compare licensee performance and identify relevant good practice. NSD will also provide information on direct shine to the Environment Agencies.
- Three planned RHS awareness events were successfully held and attended by 150 stakeholder representatives from the United Kingdom Atomic Energy Agency, (UKAEA), British Energy and British Nuclear Fuels Ltd (BNFL) Magnox. Themes concentrated on working at height as well as other site based hazards. The sites are preparing for the new Working at Height Regulations scheduled to be issued by end of 2004.
- Seventeen planned conventional health and safety inspections at nuclear sites have been carried out concentrating on working at height, and workplace transport. In addition a sample 'near miss' event-reporting arrangements have been inspected. The purpose was to ensure that the licensees have a system in place to monitor trends and take action in RHS priority areas should the need arise.

Promote the maintenance of essential nuclear safety infrastructure in Great Britain

- NSD managed the HSC co-ordinated Nuclear Safety Research (NSR) Programme and it will come in on budget at £1.6 million. The programme has provided NSD with access to important but rare sources of independent technical capability especially in the area of the material properties of graphite. In addition, it has ensured that NSD has participated in important international research, especially on high burn up fuel and heat transfer which have particular relevance to operations at Sizewell B power station.
- NSD has adopted a strategic approach to the UK's shortage of nuclear skills. NSD continues to monitor if changes to the UK's infrastructures, driven by Cogent, North West Development Agency (NWDA) and the National Nuclear Academy (NNA), are delivering what is required. It is working with Cogent and the NNA on

overcoming difficulties to achieving this infrastructure especially concerning how Suitably Qualified and Experienced Person/Duly Authorised Person (SQEP/DAP) continue to be met by licensees. It is interacting with other government departments, especially in order to intervene to correct failure to deliver. In particular, NSD is working with the Dalton Project at Manchester to establish a Nuclear School and the Nuclear Skills Advisory Group to establish an infrastructure.

Further public confidence in the UK nuclear regulatory system by providing information to our stakeholders, seeking their views and responding to them as appropriate

- HSE/NSD held a 'Stakeholder Workshop' event with stakeholders to discuss the nuclear environment and review the regulators' resource requirements over the next 20 years. There was agreement that a major challenge over the next few decades will be the NDA. However, the size of the workload that will stem from the NDA is uncertain.
- NSD has completed surveys of staff and external stakeholders and as a result refined a 'Commitments Document' which it intends to publish. NSD has undertaken some benchmarking against an overseas regulator (the United States Nuclear Regulatory Commission) and against a UK nuclear licensee (AWE) and drawn some lessons but more needs to be done. NSD has also mapped out its processes as the first stage in taking forward a change programme in line with its initiatives on continuous improvement.
- Inspectors have continued to supply quarterly reports to and also attended Local Council Liaison Committee and Local Liaison Committee meetings. Quarterly reports have also been published on the NSD website.

Ensure that NSD moves towards being a world class nuclear safety regulator

- The primary measure for this goal is to progressively increase our score against the European Foundation for Quality Management Excellence Model (EFQM). This allows us to benchmark our management practice against a recognised international standard of excellence.
- In September, NSD invited Excellence North West to send a team to assess the Inspectorate against the EFQM. The feedback report indicated our total weighted score as 400-449. This indicates we are well ahead of many organisations in the North West and recognised for excellence. In recognition we received a 'Marque of Achievement'. This is not a full award but indicates a high standard. NSD is using the output from the external assessment along with other assessments and internal audits and reviews to develop a new Continuous Improvement Programme that will run for two years.

Promote the improvement of international nuclear safety through the development and harmonisation of nuclear safety standards across the world

- NSD has continued to participate in the development of international nuclear safety standards and practices in the framework of the International Atomic Energy Agency and the West European Nuclear Regulators Association (WENRA). This work has taken on an increased importance due to European Commission draft Directives aimed at introducing common standards in the enlarged European Union. On behalf of the UK, NSD participated fully and successfully at the first meeting of the joint Convention on the Safety of Spent Fuel and Radioactive Waste. Bilateral contacts have been maintained particularly with USA, Japan, France and Ireland. NSD has continued to participate, albeit at a reduced level of activity, in assistance to the regulatory authorities of Eastern Europe and the Former Soviet Union.

Other highlights

- In October 2003 British Energy informed NSD of an event at Heysham 1 nuclear power station. A cast iron pipe carrying seawater for cooling had ruptured causing flooding in the turbine hall. Some seawater also found its way into the reactor-building basement. Both reactors were shut down as a result. HSE's nuclear inspectors responded by visiting the site that day to begin an investigation. They carried out extensive assessment of the station's recovery proposals and the safety case for re-starting the reactors. Agreement to restart was given in February 2004 after a major programme of pipework replacement had been completed. NSD is now discussing with BE its proposals for pipework replacement at its other sites.
- At Devonport Royal Dockyards although specific issues remain in relation to 10 dock, refuelling cranes and primary circuit decontamination for Vanguard class submarines, a new site-wide staged improvement programme has been agreed. At AWE we have seen improvements in the safety case area both on methodology and structure. Satisfactory progress has been maintained on the UK Atomic Energy's decommissioning programmes including the Dounreay Site Restoration Plan.

Onshore

What we aimed to achieve

125. In consultation with the chemical industry, evaluate seven RIDDOR-reportable dangerous occurrences as potential indicators of major accidents and plan to use them to contribute to the major hazard target; these indicators include loss of containment of dangerous substances, failure of pressure systems, fires and explosions. See the entry on 'A national target for major hazards' on page 27.

126. For Gas Safety Management HSE researched suitable precursors. Preliminary work, which looked at the precursors to a gas supply emergency and security of gas supplies was completed and the project is now being progressed by HSE with the assistance of the Health and Safety Laboratory, Transco and DTI.

What we aimed to do

127. HSE's plans for onshore included its statutory duties in relation to:

(a) **Major hazards and chemical industries (COMAH):** to assess safety reports; prohibit operations where there are serious deficiencies; investigate major accidents, and make recommendations for future prevention; notify the EC of major accidents; implement an inspection programme and provide advice on land use planning in respect of risks from major accidents;

Progress

HSE has continued to fulfil its statutory duties by:

- assessing 105 safety reports;
- issuing 80 prohibition notices;
- issuing 224 improvement notices;

- taking 21 prosecutions;
- investigating 1007 incidents;
- spending 8009 days on inspection.

(b) **Gas safety and major hazard pipelines:** to assess safety cases required under the Gas Safety (Management) Regulations; amend the Pipelines Safety Regulations 1996 (to include recommendations arising from the fundamental review of gas safety); assess the safety of major hazard pipelines by examining design and integrity under the Pipeline Safety Regulations 1996;

Progress

HSE has ensured risks arising from conveying gas are adequately controlled by:

- assessing nine safety cases;
- assessing the design and integrity of 69 major hazard pipelines;
- amendments to the Pipelines Safety Regulations 1996 enacted in November 2003 which will allow HSE to approve Transco's main replacement programme for 2004-05 and following years.

(c) **Mines:** HSE's Mines Inspectorate will continue to ensure risks to persons who work in underground mining and related activities are properly controlled. HSE Mines Inspectorate carried out 415 inspections.

General overview

128. HSE can report a largely successful year in the delivery of its plans for its onshore major hazard industries activities.

129. Of particular note are:

- inspection of priority topics, including legionella, astmagens and carcinogens, ensured proper control of these risks;
- business benefits resulting from interventions included: reduction of one operator's inventory of waste and improved storage conditions, enabling a reduction from COMAH top tier to lower tier. Two 'blue chip' companies made significant improvements to their pipework integrity systems following advice given by inspectors undertaking the Chemical Industries Plant Integrity project;
- a group of COMAH operators in the South West were encouraged to establish a working group to exchange ideas and information, producing benefits beyond the scope of COMAH, with improved inter-site communication and mutual support for contingency planning;
- in South Wales, 55 delegates participated in a COSHH workshop, sharing knowledge, experience and expertise, following an inspection initiative dealing with health risks at COMAH sites;
- the report of three major incidents at BP Grangemouth was published on the Internet (<http://www.hse.gov.uk/comah/bpgrange/index.htm>), reaching a wide audience and was endorsed by the UK

Petroleum Industries Association and Chemical Industries Association. Work on the development of major hazard performance indicators (one of the report recommendations) has started in collaboration with key stakeholder organisations;

- a major review by the Cabinet Office of regulatory impact on the chemical industry resulted in the Chemical Action Plan (CEMAP) concerned with improving communication, consultation and regulatory processes, with actions on HSE, EA, SEPA and CIA. All short-term actions were completed to time. Four successful regional workshops enabled companies and regulators to share views, experiences and build relationships;
- significant effort was expended on aspects related to identification of societal risks and development of embryonic options for resolution of the issues. HSC received a comprehensive presentation on a range of relevant issues and papers. Subsequently, a cross-government task group was set up. Policy Group and HID have provided significant contributions to informing and supporting the work of this group;
- other successes include: a new operational policy being developed for COMAH review/revision reports; well-received seminars held for HSC, ACDS and OGDs.

Mines explosives and gas/onshore pipeline industries

130. Of particular note are:

- hand-arm vibration notifications in the mining industry have reduced to 220 this year from last year's 414. It is anticipated that the peak of notifications has been passed;
- the List of Classified Explosives and Fireworks (LoCEF) database (all HSE's explosives classifications developed by the CBI Explosives industry) has been successfully launched;
- HSE has worked to prepare to deal with major changes in the gas industry. A project is ongoing to assess safety cases relating to proposals by Transco to sell a number of their distribution systems. This will result in a major restructuring of the gas industry in Britain;
- the first annual report on the iron mains replacement policy was delivered on time and well received by Ministers.

Other activities during 2003/04

Competent authority duty

Occupied buildings

The status of the project (to assess all occupied buildings at COMAH top tier (TT) sites against the Chemical Industry Association guidance on the design of occupied buildings for chemical manufacturing sites) has been reviewed at all COMAH Top Tier (TT) sites, and the project has been found to be relevant at 274 sites. At 52 sites, the operator has either demonstrated compliance with the CIA guidance in practice, or has agreed an action plan to achieve this with HSE. Work on this project will continue until 2005/2006 to complete the work at the other sites.

Plant integrity

The initial pilot project concerned with the mechanical integrity of plant and pipeline work at oil refineries, aimed at reducing the risks of loss containment, has been completed and a report is being prepared.

The focus of this work has now moved to plant integrity issues at all other COMAH TT sites and those COMAH lower tier sites at which plant integrity has been identified as an issue. 45 sites have been visited as part of this initiative and enforcement action taken in two instances. 30% of the total effort on this project is 2003/2004 related to investigations into two major accidents, which involved plant integrity issues, and so diverted some effort from addressing this issue at other sites.

Increasing human factors activity in lower tier sites

A pilot exercise was undertaken in 2003/2004 to trial the procedures for the project to assess the management of human factors in the control of major accident hazards at lower tier COMAH sites and to promote good practice through advice, guidance and enforcement action. A toolkit for inspectors and an information pack for operators are currently under development. The inspections will begin in June 2004 and will run until March 2006.

Reactive inspection

HSE has investigated all notified major accidents, including those involving plant integrity, although only one major accident was required to be reported to the EC in 2003/2004. This involved plant integrity issues and is the subject of an ongoing investigation.

Land use planning

Planning applications

3640 full planning applications processed;

118 outline planning applications processed;

Assessment of hazardous substance consent site risks, and major accident hazard pipeline risks, in order to give land use planning advice.

HSE has a statutory duty to provide advice to planning authorities on the siting of and developments near to major hazard sites, including pipelines. This duty arises from the Seveso Directive, as implemented by the COMAH and the

Planning (Control of Major Hazards) Regulations. In order to provide this advice, HSE needs Consultation Distances to be calculated and 'three zone maps' to be produced. When the COMAH Regulations were introduced, new definitions of hazardous chemicals meant that many sites either required planning consents for the first time or needed their consents updating. The additional work meant that a backlog built up and staff in the Unit (Specialist Industries 4) have been trying to manage this substantial overload;

73 hazardous substances consents processed.

Implementation of the Fundamental Review of Land Use Planning Project (IFRLUP)

On track to achieve all milestones plus additional work has been undertaken in relation to societal risk. The second edition of the IFRLUP newsletter was completed and distributed in January 2004. It has been widely praised by a significant number of external stakeholders.

Carriage of dangerous goods

The delegation of responsibility for enforcing the CDG Regulations to the Police and Vehicle Inspectorate has been completed, although HSE staff still participate in some roadside checks, and discuss the Regulations with operators where appropriate at site visits. HSE has introduced a system of sending follow-up letters to operators following notification of significant breaches of the CDG Regulations from the Police; this has been very effective in getting responses from operators as to the actions which they have subsequently taken.

Chemical industry

Proactive inspection

HSE inspectors have carried out 55 inspections of cooling towers as part of the legionella project;

Visits have also been paid to complete work on the asbestos management in buildings project;

Work on the control of asthmagens and carcinogens has been undertaken on behalf of HSE by FOD's Specialist Occupational Hygiene inspectors;

Enforcement

21 prosecutions taken all of which resulted in convictions;

250 enforcement notices were issued.

Statutory services

604 diving certificates were issued;

Number of classifications issued is 225 (100% of plan) and of those 220 were completed to time, giving us 98% of our service products completed to time;

Number of explosives site licences issued is 17 (43% of plan due to reduced number of applications);

Applications for exemptions to allow various activities to take place, eg innovative system of work, have been investigated and where appropriate issued within the necessary timescales. Year-end figure is 91;

69 PRS pipeline notifications have been assessed;

38 fire certificates issued, compared to a planned figure of 47.

Prevention of falls from road tankers in the chemical industry

88 visits were paid during 203/2004, either to new sites, or follow-up visits to sites visited in previous years. Enforcement action was taken in seven instances;

HSE has also been involved in discussions with tanker operators and suppliers of systems for the safe loading/unloading of road tankers, over the effectiveness and suitability of such systems.

Prevention of falls during the sheeting of lorries

Two visits have been paid under this project (the main activity involving the sheeting of lorries relates to the transport of ammonium nitrate, and responsibility for that has been transferred to Specialist Industries Division, hence the low number). The trade association has prepared an audit system for assessing the risks and guidance on fall prevention options. This has been trialled but not yet provided to members. Arrangements have been made to consider enforcement across Directorates.

Prevention of falls from ladders, roofs and stairs

Visits have been paid to 56 operators and ten accidents involving falls from ladders, roofs or stairs have been investigated. Initial analysis of those accidents has indicated that that failure to carry out an adequate risk assessment was a feature in several of them. Enforcement action was taken in six instances.

Prevention of fork lift truck (FLT) accidents

Visits have been paid to 97 operators, and 24 accidents involving FLTs have been investigated. Initial analysis of those accidents confirms that the most common causes are poor segregation of FLTs and pedestrians, and operator error. Enforcement action taken in ten instances.

Musculoskeletal disorders

Visits have been paid to 62 operators in relation to this project and five accidents involving manual handling have been investigated. Enforcement action was taken in two instances.

Inspection of construction activities

Visits have been paid to 42 operators to inspect construction activities at chemical plants. Enforcement action taken in two instances.

Control of major hazard risks underground at mines

A rising incidence of reported mine fires during the first half of the year instigated an in-depth investigation into conveyor belt standards, including the arrangements for maintaining the conveyor systems. This has led to a significant change by the largest mine operator in the way the conveyor installations, inspection arrangements and maintenance systems are managed.

The reconstituted Mining Industry Committee replaced the Deep Mined Coal Industry Advisory Committee during 2003/4. The change was used to significantly widen the representation of the Committee to include miscellaneous mines, ie mines other than coal. The new Committee is augmented by a small number of working groups, eg a Mines Rescue Working Group with tasks remitted from the Committee. The working groups draw representatives from employers, trade unions and manufacturers/suppliers as necessary, an example of close working relationships with key stakeholders.

The use of umbilical cord-type controls in tunnel drivage work is now allowing some miners previously diagnosed with HAVS to be rehabilitated back into tunnel drivage work without further significant risk to their health.

The control of health risks at mines

All three notifications of adverse respirable dust samples were investigated and remedial action secured. Two new cases of pneumoconiosis were reported during the year. In both cases the miners involved had not regularly attended for health surveillance X-rays. The main coal mine operators have reviewed the system of X-ray surveillance and put additional arrangements in place to increase the effectiveness. HSE staff have effectively engaged stakeholders in consultation on new regulations and standards to control inhalable dust better.

Explosives sector

Total preventative inspection contacts = 291 (139% of plan);

COMAH inspections = 38 (146% of plan);

Activity time on inspection = 334 days (94% of plan);

Guidance on decommissioning was produced during 2003 and is about to be published by the Confederation of British Industry (CBI) and the Explosives Industry Group (EIG).

Disposal of explosive waste

The planned programme of inspections was completed in 2003. This concluded that the guidance was inadequate, particularly for small businesses in the fireworks industry. A Working Group has been set up to develop revised guidance.

Decontamination of explosives, plant, building and land

The work was completed according to plan, ie guidance was developed and agreed in mid-2003 and is currently being prepared for publication by CBI/EIG.

The next step in 2004/05 will be to assess the impact this work has had on levels of compliance.

Gas distribution network

2800 km of medium pressure ductile iron (MDPI) mains decommissioned by 30 April 2003 removing all known at-risk mains.

Transco met the agreed annual target for decommissioning cast iron and ductile iron mains in the 30-year programme.

Standards and external guidance

Work on promotion of risk assessment etc. Limited progress due to diversion of resource to HSC priority societal risk work.

Technical guidance strategy - progress made with short-term guidance topics; limited progress on developing cross-directorate guidance and rationalisation of COMAH guidance due to other demands.

Priority guidance. First draft of safe isolation guidance produced. Remotely Operated Shut Off Valves (ROSOVs) guidance awaiting publication.

OIAC permit to work guidance revised in collaboration with industry stakeholders.

Policy development

Guidance on offsite risks produced and training delivered to Field Discipline Teams.

Embedding ALARP. Limited progress due to diversion of resource to HSC priority Societal Risk work.

New operational policy developed for COMAH review/revision reports.

Technical efficacy project to identify and recommend improvements to safety report technical assessment initiated and managed.

Major Incident Procedures tested and improved. HID contribution made to Operations Group wide ongoing preparation for Civil Contingencies bill.

Offshore regime benchmarked against HSC Permissioning Policy principles. Identified areas for improvement fed into the safety case handling assessment manual revision and Offshore Safety Case Regulations review.

Offshore

What we aimed to achieve

131. Hydrocarbon release is the most significant hazard offshore and is the most significant precursor to a major incident offshore. During the 6 years prior to the introduction of HSE's programme to reduce the number, there had been no significant downward trend in the frequency. There are approximately 250 hydrocarbon releases (major, significant and minor) per year which occur primarily because of failures in basic controls and procedures.

The aim of the programme is to bring about a 50% reduction in major and significant gas releases by March 2004, by:

- identification of common failure modes leading to hydrocarbon leaks;
- increased enforcement;
- increased awareness of poor performance offshore;
- identification of root causes and most effective remedies.

132. For 2003-04 the reduction in major and significant releases since 2000/01 is estimated to be about 40%. Although this is less than the 50% target we had aimed for, it is a significant reduction and further reduction targets have been set in conjunction with industry for 2004-05 and 2005-06.

What we aimed to do during 2003/04

133. HSE ensures that risks to people who work offshore in the upstream petroleum industry are properly controlled. It does this primarily through the assessment and verification of safety cases supported by a programme of inspection, focused activity on assessment, investigation, enforcement, advice and education. The core of the offshore safety regime is the Offshore Installations (Safety Case) Regulations 1992. We aimed to bring forward proposals to revise these Regulations, to improve their effectiveness while reducing associated bureaucracy.

Progress

134. A total of 130 safety cases were assessed and 452 site visits completed to implement the programme of verification and investigation in the offshore industry. This programme was supported by advisory and partnership working with the industry and, where appropriate, enforcement action including ten prosecutions and 48 improvement/prohibition notices. In relation to the revision of the Offshore (Safety Case) Regulations 1992, draft proposals were circulated and a formal Consultative Document will be published mid-2004. Further detail of activities are provided in the table on pages 42-45.

General overview

135. HSE's Offshore Division supports HSE's mission by helping to secure the UK, with industry, as the world's safest offshore sector by 2010 and to significantly reduce work-related fatal accidents in the diving industry. Strategic programmes are in place which continue to focus resources on the reduction of major accident hazard risks and on the continued unacceptably high levels of major and in particular fatal accidents. Although the offshore industry has continued to reduce levels of accidents and incidents, three fatal accidents occurred in the sector which was disappointing when compared to none in 2002/03. There has, however, been an encouraging reduction in fatalities associated with the professional diving sector with the exception of military diver training.

136. Other representative highlights were:

- the offshore industry continues to develop an occupational health incident database to capture ill health in addition to that covered by RIDDOR. Presently 16 companies are contributing data;
- HSE, together with the Offshore Industry's Step Change In Safety organisation (an initiative to deliver a major improvement in the industry's safety performance) and trade unions, worked together on a joint stand at the 2003 Offshore Europe exhibition;
- a major conference opened by the Minister of State in Aberdeen advanced the case for revision of the Safety Case regime.

137. Serious challenges remain, and new challenges emerge:

- pressures to reduce operating costs compete with the need to maintain integrity of ageing installations;
- the industry is in transition from a 'big oil' province operated by 'supermajor' oil companies to a mixed economy that includes new entrant small operators and which is increasingly serviced by contractors.

A snapshot of activities during 2003/04

Managing hydrocarbon releases offshore

All mandatory investigations were processed, including offshore investigations into major gas releases.

All planned guidance was developed and published in co-operation with UKOOA and other industry bodies.

Each manned production installation on the UKCS has received an inspection based on the 10-part inspection guidance suite. The Worst Hydrocarbon Release Installations Project (WHIP) was completed during the year and as part of the final programme report the performance of these targeted installations will be analysed to see what improvements in hydrocarbon reduction performance has resulted.

A full analysis of the root causes of hydrocarbon releases throughout the duration of the programme continues to be undertaken and this will be fed into OSD's Installation Integrity Programme which is running from April 2003 to March 2007.

Reduction in FPSO collision risks

The plan has not been fully achieved because of other priorities (major accident investigation, etc). However, the theme inspections have continued to plan, to help ensure that the main industry group (UKOOA) guidance is being used and that dutyholders are auditing their own arrangements. Influencing activities with stakeholders have also continued.

Incorporation of health and safety in design

HSE activity is dependent on new designs arising; in the main they did not do so. However, a number of inspections have been carried out during the design stage of new and modification projects. The Development of a Design Capability Maturity Model (DCMM) approach has been applied to one design project. Also, HSE has continued to influence industry through presentations and publicity.

Integrity of Safety Critical Elements (SCEs)

Significant improvement can be made in the management of hydrocarbon releases offshore by improving integrity standards. This key programme has therefore been renamed 'Installation Integrity' and the scope widened. A series of successful pilot inspections has been held during 2003/04 looking at the management and maintenance of safety critical equipment and systems. From these an inspection template has been devised which is to be implemented from April 2004 to March 2007. Briefings have been held with stakeholders to bring them up to date with the broadened scope and seek their views on the outputs and outcomes that need to be achieved under this programme. Positive and valuable contributions have been received from industry and workforce. UKOOA is planning to set up its own focus group to promote and raise awareness of the issues being raised by this programme.

Reactive inspection

645 incidents (including two offshore fatalities and three inshore diving fatalities) were investigated.

81 offshore and inshore diving complaints investigated.

97.6% of valid complaints investigated.

97% of incidents requiring mandatory investigation under OSD criteria for investigation investigated.

Significant investigations included the TU complaint regarding a major oil company's Offshore Business Improvement Programme and the Brent Bravo double fatality.

Offshore research and development

10 000 page hits on the Offshore Research Focus website per month.

Continuing work on exposure to drilling mud (to be presented at BOHS 2004) included co-operation with Dalhousie University (Canada).

New work on standards for decontamination units offshore: results promulgated to industry, exposure to noise during water jetting and the extension of the Examination of the Long Term Health Impact of Diving Study (ELTHI).

First part of University of Aberdeen research into the relationship between health promotion and improved safety culture/behaviours completed.

Two new projects, Well Integrity and Well Control, are currently being initiated.

A wide-ranging review of helicopter safety from 1976 to 2003 has been undertaken and completed.

Overall, there has been a significant reduction in activity due to the new arrangements for research management. A programme-based approach to research and development has now been developed, and this should help future work.

Standards and external guidance

Development of relevant BSI standards monitored.

Significant progress has been made in securing industry interest to review the need for new or revised standards and guidance.

A number of the parts of the ISO standard for offshore structures are now coming to fruition after many years' effort.

Work has been carried out in connection with the revision to the Society of Naval Architects and Marine Engineers international standard for jack-up installations and the development of an annex for the North Sea.

Close liaison has occurred with the Civil Aviation Authority (CAA) in developing the Helideck design guide.

Support given to the development of the International Association of Drilling Contractors (IADC) guidelines for health, safety and environment cases.

Safety Notices were released that deal with ageing semi-submersibles, flooded machinery spaces on floating installations and stress corrosion cracking of duplex stainless steel. An Operations Notice was released concerning radio communications between offshore installations and vessels.

Inshore diving inspection

392 preventative inspection contacts.

Three major injuries and 0 fatalities.

Proactive inspection is below plan by 7% due to ongoing accident investigations and ensuing prosecution cases. Significant improvement in terms of risk assessment and project planning, have been found during inspections - particularly in the recreational sector where there is an 'at work' element. However, standards are variable and some examples of bad practice are still being encountered. The reduction in fatal and major accidents compared with previous years is encouraging.

Advice and information on a wide variety of subjects across all diving sectors continued to be provided including participation in industry working groups, trade shows, standards formation and HSE sponsored research. HSE's positive influence extends into the 'not at work' recreational diving sector, which has also seen a decrease in fatal accidents in 2003/04.

Enforcement

53 Notices offshore plus 34 inshore diving issued.

10 prosecutions offshore plus 9 inshore diving.

Securing compliance

15 offshore (not including the four specific offshore Topic Programme 1 - Musculoskeletal disorders and reducing occupational health risks visits) inspections carried out either with Inspection Management Teams or unaccompanied with a further two planned for March. Includes planned inspections, investigations (accommodation) and additional inspections relating to asbestos removal (other OH topic normally included);

Review of a number of notifications of asbestos removal work offshore;

Audit of a dutyholder's noise control policy, resulting from adverse finding during a review with the dutyholder;

Publication of *Noise exposure and control in the offshore oil and gas industry - An inspection tool for HSE/OSD inspectors* on the HSE and Step Change websites;

Semi Permanent Circulars etc prepared on: noise control and enforcement; draft COSHH/CAWR updates, HID health and safety supplement on toxic substances; application of REPPIR to HID premises; supply of controlled drugs offshore; electroplating, activity on musculoskeletal disorders and reducing occupational health risks; draft accommodation standards review; and draft operational notice on toxic effects of hydrocarbons;

Presentations to various forums including Step Change OH workshop (Jan 2004), Bureau Veritas Acoustic Technology Noise seminars, British Occupational Hygiene Society Offshore Special Interest Group;

Meeting with Department of Occupational Medicine, University of Bergen;

Projects (asbestos, asthmagens, short term exposures and benzene) progressing.

Risk management in the workplace

This programme has been extended to include all deck operations. A Semi Permanent Circular was issued instructing mandatory investigations of drilling and deck-related accidents. This was accompanied by modified guidance for HSE's Offshore Safety Division's Inspection Management Team (IMT) inspectors.

Partnership has been established with Step Change. Penetration within the industry of the Step Change 'fatality report' will be assessed by IMT inspectors.

Nine major injury accidents in drilling and deck operations reported, five investigations completed, four investigations ongoing.

Sixteen inspections of drilling installations.

Six inspections of production platform deck operations.

Occupational health management

Inspection programme:

In this initial year four dutyholders were involved in the Occupational Health (OH) Management year with a further one to start before the end of year;

Initial HQ and installation visits completed for three of the above dutyholders;

Early findings from inspections have been used to feed back to the industry on how OH risk management can be improved.

Investigation programme:

Eleven MSD injuries sustained while moving loads.

Support for Step Change:

HSE presentations given as part of the Step Change OH Workshop (20-21 January 2004);

HSE representation on the Step Change MSD Work Group.

Indications of effect:

Since the baseline year of 1999/2000, there has been a steady fall in the rate of accidents that have been reported as resulting in MSD injuries (RIDDOR);

It is too early to evaluate any changes in company approach as a result of this programme – this will form part of the 04/05 feedback;

Step Change Occupational Illness reporting scheme is still developing. Information from the first two years data cannot be easily compared due to different number of dutyholders involved. The following results may therefore reflect differences in reporting:

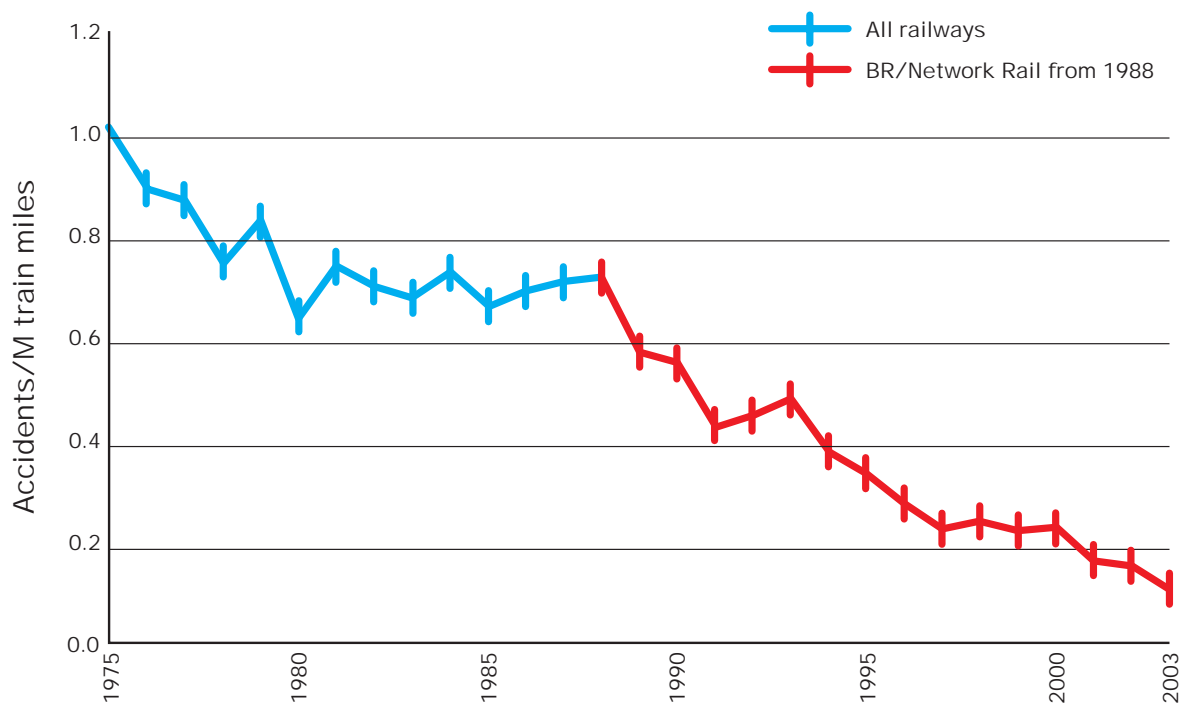
- MSD and mental ill health are main reasons for illness reports for both years.
- 2002/2003 comparison show a rise in MSD cases from 42% to 59% and a reduction in mental ill health from 50%-21% of the total reports given.

Rail

What we aimed to achieve

138. The last ten years have seen a downward trend in accidents on the railways (see Figure 1) - our purpose is to ensure this continues. Examples of work implementing our 5-point strategy to achieve this is described in the table below. Full details of HSC's recently updated Rail Strategy 2004-5 can be found on HSE's website <http://www.hse.gov.uk/hsc/strail0405.pdf>.

Figure 1 Collisions {including with buffer stops, but not open doors} and all derailments on/or affecting passenger lines



Source: HMRI Annual Report and RSSB

What we aimed to do during 2003/04

139. To work with all stakeholders to maintain an effective and efficient framework for continuously improving health and safety on Britain's railways. The safety case regime will continue to be central to our interface with the industry. To work with industry stakeholders and regulators, such as the Strategic Rail Authority and the Office of the Rail Regulator, to ensure activities do not conflict and to secure mutual health and safety benefits.

140. To work with all our stakeholders to identify indicators, complementary to HSE's current rail strategy, to monitor improvements in rail safety. Final indicators have now been agreed and the Rail Safety and Standards Board 'rail safety risk index' has been adopted. See the entry on 'A national target for major hazards' on page 27.

141. During 2003/04, the operational environment of the railways continued to be shaped by the need for the rail industry to make the safety improvements recommended by Lord Cullen's two reports on the Ladbroke Grove rail collision. These actions are set in the wider context of the HSC's Rail Strategy, which has recently been updated to keep

pace with the many changes in our operating environment and to give more details of the work HSE is doing under the Rail Delivery Programme (RDP) which was not in the original Strategy published in 2002.

142. HSE continues to work with the Office of the Rail Regulator, the Strategic Rail Authority and the rail industry to ensure health and safety implications are taken into account. The successful completion by the end of 2003 of the implementation programme for the Train Protection Warning System (TPWS) has required close cooperation. TPWS has prevented a number of potential collisions.

143. Work has continued on a major review of the key legal requirements for railway safety cases, approval of works plant and equipment, and safety-critical workers. HSC's proposals were published in a Discussion Document (DD) *Safety on the railway - shaping the future*. Sixty-seven responses were received. Ways forward were explored at a seminar in February 2004, where there was broad agreement that HSE should aim to replace the existing three sets of railway specific regulations with one set of integrated requirements that included measures to implement the safety management provisions in the Railway Safety Directive and apply them to metros, heritage railways and trams in a tiered approach that was proportionate to risk.

144. Since the Secretary of State for Transport announced his major review of the railways in January 2004, HSE Rail has been contributing material to inform this review, and this work continues.

Other activities carried out during 2003/04 include

Revitalise health and safety performance on the railways through targeted action

Rail Delivery Programme

Fourteen projects have been developed within the programme covering the wide range of HSE Rail's work. They will deliver business quality and regulatory improvements in line with the Cullen agenda and in support of HSE and HSE Rail's vision and mission.

Initial integrity and (safety by) design issues through inspections, approvals, assessments and authorizations

Integrated working (including joint field and specialist inspection team operations) specifically with Virgin, Midland MainLine (MML), London & Continental Stations and Property Limited (LCSP); 95% of approvals, authorisations and level crossing orders processed within the agreed timescales and with added value to the process through inspectors providing dutyholders with effective advice and guidance. Overall numbers of schemes processed was well in excess of the estimated numbers; prompt authorisation of Channel Tunnel Rail Link allowed the new line to be opened on time.

Railway Safety Case (RSC) Assessment

With few exceptions, safety cases have been assessed within the agreed timescale. Where problems have occurred the railway operators have been kept informed. Intervention plans now in place for all railway safety case holders.

Intervention Plan work

Three-year rolling intervention plans made available at the start of the year and shared with duty holders.

Incident investigation

Examples of some of the more significant investigations include: a) the Chancery Lane derailment on the London Underground, this led to agreed risk control measures allowing the LUL to reinstate services on the Central Line; b) the derailment over a set of points at Camden Town LUL station in October 2003 that revealed fundamental design issues for the particular type of points involved (a model of co-operation between the dutyholders, TU safety representatives and consultants).

Complaint investigation

HMRI successfully fulfilled its commitment to respond to all complaints.

Formal liaison meetings undertaken with the Regional Passenger Committees. This has allowed for a better understanding of the role of HMRI and of the impact of railway safety legislation on matters of concerns to rail passengers.

Enforcement

Guidance on the HMRI Enforcement Management Model issued and adopted.

Train Protection generally and the Train Protection Warning System (TPWS)

The programme of TPWS fitment as required by the Railway Safety Regulations 1999 was successfully completed by the end of 2003. This is now providing real safety benefits across network. During 2004, HSE granted exemptions from the regulations where the industry showed the costs of fitment were high and safety benefits low. As a condition to one of these exemptions, the industry will agree with HSE a programme of fitment of TPWS+ which will provide additional safety benefits at higher speeds.

European Rail Traffic Management System (ERTMS)

HSC/E has continued to monitor delivery of the work of the National ERTMS Programme led by the SRA.

Signals Passed at Danger (SPADs)

Worked closely with industry's programme to reduce and mitigate SPADs, including input to industry working groups and bilateral meetings with Network Rail.

Infrastructure and Track Maintenance

Interventions were successfully and effectively carried out for track maintenance as part of the Intervention plan work with Network Rail and First Engineering (backed up by local initiatives); Measures taken to effect action on serious backlogs (revealed through Interventions) of structure and tunnel examinations;

Changes to Network Rail's safety case (as a result of the transition from outside contractor maintenance to in house staff) were assessed and the transitional process monitored to satisfy HMRI that safety performance was not adversely affected. Changes were then audited to validate the new organisation's competence to maintain the infrastructure. Initial indications are that this has been managed without incident, is popular with those who used to work for Serco and at this stage can be seen as a qualified success;

Track maintenance issues (including heat related track defects) were examined. Some concerns about adherence to procedures but on the whole defects were being picked up.

Accident investigations

All mandatory accidents investigated. Joint investigations with British Transport Police (BTP) positively received by the industry;

National Union of Rail, Maritime and Transport workers (RMT) concerns about risk following the Tebay tragedy were successfully addressed by HSE/HMRI through active engagement and debate with them about the additional protection and emergency measures for trackworkers.

Level Crossings

Level crossing project in place under HSE Rail's Rail Delivery Programme aiming to bring about a reduction in level crossing incidents through five strands of work for delivery by end of 2004/5. The projects involve close working between HSE Rail's technical, operational and policy staff. Arranged a series of initial meetings with key stakeholders to seek views and support for this work. Initiated work to produce a level crossing strategy and policy.

Contributed to meetings of the National Level Crossing Safety Group.

Dealt with sensitive reactive issues including questions regarding public access to private level crossings in Scotland.

The number of level crossing Orders issued far exceeded the estimated level. All Orders processed within the agreed timescales. All planning applications have received comment within the statutory timescales.

Managing contractors

Management of infrastructure maintenance contractors (particularly the migration of this work into the Network Rail management structure) closely monitored by HMRI. This included inspection of hours of work monitoring undertaken by safety critical staff.

Trackside workers

Close working with Network Rail and its contractors to support the implementation of the industry's RIMINI (minimisation of risks to trackside workers) programme.

Contribution to the cross-industry Track Safety Strategy Group and RSSB's Green Zones: 'Thinking Strategically' initiatives.

Work on producing guidance for the industry on track worker safety.

Route Crime (Trespass, Vandalism and Assault)

Route crime is the term used to describe a wide range of trespass and vandalism activities that present a risk to both individuals and railway users generally. There were 59 trespasser deaths in 2003/4 of which 26 were suspected suicides.

Initiatives have been undertaken to increase awareness of trespassing danger in schools.

Draft strategy developed.

Occupational health issues

RIAC's occupational health working group strategy developed to gain commitment and ownership from rail industry stakeholders to an occupational health agenda.

Worked with RSSB to help shape the content of the occupational health research programme.

Raising awareness of stress in the rail industry.

Targeted inspections on manual handling, control of exposure to legionella and control of diesel emissions.

Research, technical foresight and standards

Maintained links with the Rail Safety and Standards Board (RSSB), with the aim of ensuring that their research agenda meets HSE's needs as far as possible.

Began work to develop a strategy for HSE Rail's research.

Attended meetings of Advisory Group on Rail Research and Innovation (AGGRI) to ensure HSE Rail is aware of industry plans for research with implications for health and safety.

Contributions made to industry wide steering group for production of guidance on the management of slopes – results published.

Rolling contact fatigue, crashworthiness and tram issues addressed as part of rolling programme.

Provide an effective and transparent legal framework

Reviewing regulations

A comprehensive response was given to the Department for Transport consultation document, supporting their proposal for delaying conventional regulations to align with timescales for the Amendment Directive. HSE Rail contributed (and attended the DfT roadshows) providing assurance to industry that our new process and procedures would not duplicate European requirements undertaken by Notified Bodies ('NoBos' - organisations notified to Commission by Member States as being competent to undertake verification assessment procedures, issue certificates of conformity and prepare technical files).

Effective input made into the rail legislative review through contributions and ideas, including reviews of Railways and Other Transport Systems Regulations 1994 (ROT's) and Level Crossing legislation. The outcome of the DfT consultation document on conventional interoperability is awaited.

Input given to meetings of NoBos and the Interoperability Implementation Forum ('IIF' - a forum of Government and industry interests to discuss implementation).

Tackling industry standards

Project incorporated within Rail Delivery Programme and re-assessed to define a new standards-related strategy for the HMRI Intervention Plan. Clear standards process/input maps prepared for UK standards and Technical Standards for Interoperability (TSIs), with information disseminated within HSE and to industry. Standards Strategy presented to industry – has achieved very good reception and acceptance. In response Industry is now developing its own strategies.

Ensure the delivery of the improvements recommended in public inquiry reports

Progress report on Public Inquiry recommendations published in August 2003.

Influence and contribute to the wider strategies of other rail stakeholders to maximise our collective contributions to rail health and safety

RAIB (Rail Accident Investigation Branch)

Project established to support the development of RAIB, provide input to DfT-led Regulations, and develop protocols and new working arrangements. HSE has also provided four staff on secondment to RAIB.

Shape the rail safety agenda in Europe so that it aligns as far as possible with UK structures and approaches

European Directives and ILGGRI (International Liaison Group of Government Railway Inspectors)

Second Rail Package, including a Directive on Railway Safety, came into force in April 2004.

HSE Rail officials participated in a number of full and special ad-hoc meetings of ILGGRI on a range of issues; international meetings held on policies such as train driver licensing, interoperability directives, international standards, and the implications for ILGGRI organisation and working practices as a result of and matters arising from the inclusion of the Accession States joining the EU.