Harpur Hill, Buxton, SK17 9JN
Telephone: +44 (0) 1298 218000
Facsimile: +44 (0) 1298 218590

**HEALTH & SAFETY
LABORATORY**

**A survey of processes and systems for learning
lessons from incidents within HSE and industry**

HSL/2005/30

Project Leader: **Sandra Gadd**
Author(s): **Sandra Gadd, Deborah Keeley and Shane Turner**
Science Group: **Human Factors Group**

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EXECUTIVE SUMMARY

This report presents findings from a project conducted by the Health and Safety Laboratory (HSL) on behalf of the Corporate Science and Knowledge Unit, part of the Corporate Science and Analytical Services Directorate of the Health and Safety Executive (HSE). The aim of the work was to examine existing arrangements for learning lessons from incidents within UK industry and HSE, and establish a policy for how to effectively identify and promulgate lessons learned from incidents at all levels.

Objectives

The objectives of the project were to:

- Examine existing arrangements for learning lessons from incidents within UK industry and HSE;
- Capture examples of good practice in existing arrangements;
- Establish sound principles to be applied for the collection and dissemination of information;
- Identify significant weaknesses and gaps in existing arrangements and develop options for remedying them.

The scope of the work was extremely broad, covering all sectors of industry (both HSE and Local Authority enforced) and being concerned with lessons learned from safety and ill-health related incidents. All types of incidents (accidents, incidents and near misses) were within scope with the exception of those major accidents that have resulted in a public enquiry.

Main Findings

The first stage of the work was an information gathering stage consisting of literature and internet searches and interviews with both HSE staff and representatives from industry bodies. As the scope of the work was so broad, it was agreed that a sampling approach would be needed for the information gathering stage of the work, in order to complete the work within the agreed time and cost constraints of the project. The literature review therefore focussed specifically on material concerned with the policy and principles of learning lessons; material relating to the mechanisms that would be put in place as part of a learning lessons system was largely excluded as this was beyond the remit of the work. In addition, it was agreed that for the interviews, a sample tailored to those sectors of industry where the majority of people are employed (i.e. small and medium sized enterprises (SMEs) and the service sector), and those sectors of industry where the most accidents occur would be appropriate.

The study drew on information mainly from the UK with some international examples also identified in the literature review. Following the information gathering stage, a detailed review and analysis of the information collated was carried out and the following elements were drawn out:

- Key principles for effective learning and good practice;
- Weaknesses and gaps in existing arrangements, including identified barriers to learning and areas for improvement, and where possible suggested solutions.

An effective system for learning lessons from incidents would need to include the following elements:

- An incident/accident reporting system;
- A process for incident investigation that ensures that the underlying as well as immediate causes of accidents and incidents are understood, taking full account of human and organisational factors;
- A process for analysing cumulative information on accidents and incidents from both internal and external events;
- A process for ensuring that the findings of incident investigation and analysis of accident and incident data are acted upon in a timely fashion and suitable interventions put in place or modifications made to prevent a recurrence of the incident or similar incidents;
- A process for evaluating the success or otherwise of interventions and modifications;
- A process for disseminating information on accident and incident causation and suitable interventions/modifications to all relevant parties (both internal and external), as quickly as possible;
- A system to capture the information in a format that is readily searchable and retrievable to allow ease of access, so that any lessons learned stay learned (corporate memory).

In a well managed organisation, the elements of an effective learning lessons process outlined above (with the exception of elements of dissemination of information) should form part of a good health and safety management system. That is, it should not generally be necessary to specifically have a separate learning lessons system.

Each of these elements has been broken down in the report into a number of sub-elements that can be considered to represent good practice principles in each area, and where possible, examples of the application of these good practice principles in existing arrangements within HSE and industry have been highlighted.

Recommendations

One or two key recommendations relating to each element of an effective learning lessons process have been drawn out. These key recommendations are essentially suggestions for remedying some of the identified weaknesses and gaps in existing arrangements. The key recommendations can be summarised as follows:

- Ways to create the right environment to encourage reporting of incidents and accidents throughout industry should be explored;
- Industry should be encouraged to investigate all significant incidents using appropriate techniques to ensure that there is adequate consideration of underlying as well as immediate causes and of human and organisational factors;
- The consistency of approach to incident investigation throughout HSE should be improved, and there should be improved training for inspectors on the use of appropriate accident investigation techniques that include adequate consideration of root causes and human and organisational factors;
- Within HSE, the robustness of internal systems for cross-sector sharing of information (for example the findings from incident investigation) should be improved;
- Industry should be encouraged to implement better systems for acting on the findings of incident investigation and accident analysis, and for evaluating the success or otherwise of interventions and modifications;
- Monitoring of progress and follow up of recommendations arising from HSE investigations could also be improved;

- A more detailed examination of the issues arising in relation to ongoing legal proceedings by HSE, and the possible impact this has on the dissemination of information on lessons learned should be carried out;
- It would greatly assist industry in learning lessons if all HSE guidance, reports and information was available to the public, free, and readily accessible, for example if they could be downloaded free from the HSE website;
- It is recommended that attempts to improve organisational learning and knowledge management within HSE be made to improve the organisation's corporate memory.

1   INTRODUCTION

Ensuring that lessons are learned from previous incidents so that identical or similar accidents arising from work activities can be prevented in the future is central to the Health and Safety Executive (HSE) mission, to protect people's health and safety by ensuring that risks arising from work activities are properly controlled. The Corporate Science and Knowledge Unit of HSE commissioned the Health and Safety Laboratory (HSL) to carry out a study to examine existing arrangements for learning lessons in UK industry as a whole, and to report the findings.

In parallel with this work, a complementary study looking at the post accident investigation and remedial processes used in major sectors of industry, is being carried out by a working group of the Royal Academy of Engineering.

1.1   PROJECT AIMS, OBJECTIVES AND SCOPE

The aim of the project is to establish a policy for how to effectively identify and promulgate lessons learned from incidents at all levels. The work will result in the identification of sound principles to be applied for the collection and dissemination of information, including details of the roles of the various stakeholders. Additional aims are to identify and if possible prioritise significant weaknesses and gaps in existing arrangements and develop options for remedying them.

The work is concerned with the development of policy and principles for how to learn lessons and share this information, rather than with the mechanisms that would be put in place to facilitate this. The approach adopted is to gather information about what currently happens in HSE and the industrial community in terms of the systems and arrangements for identifying and promulgating lessons learned from incidents. These systems will then be evaluated, and existing examples of good practice and key principles for effective learning will be drawn out. Any ideas arising as to what could be done differently or better will also be highlighted.

The scope of the work is extremely broad, covering all sectors of industry (both HSE and local authority (LA) enforced), and being concerned with lessons learned from safety and ill-health related incidents. All types of incidents (accidents, incidents and near misses) are within scope with the exception of those major accidents that have resulted in a public enquiry. The study will draw on information mainly from the UK, with some international examples identified in the literature review.

1.2   METHODOLOGY

The work was carried out in three stages:

- Information gathering;
- Analysis of findings;
- Final report.

The information gathering stage of the work consisted of:

- Literature and internet searches;
- Interviews with HSE staff with detailed knowledge of what is done in different sectors of industry and within HSE;

- Interviews with representative industry bodies with valuable information about how companies/organisations learn from incidents and what HSE (and others) involvement is in this.

As the scope of the work was so broad, it was agreed that a sampling approach would be needed for the information gathering stage of the work, in order to complete the work within the agreed time and cost constraints of the project. It was not therefore the intention to gather information in a fully comprehensive way, ensuring complete coverage of all sectors of industry. Instead, it was agreed that for the interviews, a sample tailored to those sectors of industry where the majority of people are employed (i.e. small and medium sized enterprises (SMEs) and the service sector), and those sectors of industry where the most accidents occur would be appropriate. The use of such a sample would be broadly representative of UK industry as a whole, and would enable the project aim of the identification of sound principles to be applied for the collection and dissemination of information to be met.

Similarly for the literature review, it was not the intention to carry out a fully comprehensive review of the literature, as it was recognised that there is a huge volume of literature in this field, much of which relates to the mechanisms that would be put in place as part of a learning lessons system. Instead, the literature review focussed specifically on material concerned with the policy and principles of learning lessons. In addition, a selection of key references that included particularly valuable information relating to mechanisms for elements of the learning lessons process were identified and briefly reviewed.

The study drew on information mainly from the United Kingdom (UK) with some international examples also identified in the literature review. Following the information gathering stage, a detailed review and analysis of the information collated was carried out and the following elements were drawn out:

- Key principles for effective learning and good practice;
- Weaknesses and gaps in existing arrangements, including identified barriers to learning and areas for improvement, and where possible suggested solutions.

This final report of the work summarises the information gathering and analysis stages, as well as including recommendations for the way forward, including the development of options for remedying weaknesses.

1.2.1 Literature review

Comprehensive literature searches were performed on the OSH-ROM database. OSH-ROM includes four leading bibliographic databases: CISDOC (International Labour Office); NIOSHTIC (United States National Institute for Occupational Safety and Health); HSELINE; and RILOSH (Canada). It covers occupational health and safety with over 350,000 citations since 1960. The following keywords were used in the search: accidents, incidents or near misses, plus one of the following: lessons learned, learning lessons, investigating and investigation.

1.2.2 Interviews with HSE staff

Interviews were held with a range of people across HSE with knowledge of how companies/organisations in their sectors currently learn from incidents and what HSE's involvement is in this. Representatives from all operational divisions and directorates were interviewed as well as others who had relevant knowledge and experience to contribute. An organisational chart for HSE is shown in Appendix E. It should be noted that this chart reflects

HSE's structure when the interviews were carried out. An initial list of HSE contacts was provided by the HSE project officer.

The majority of the interviews with HSE staff were conducted face to face, using a semi-structured format (i.e. there was a range of topics to cover, but the exact questions and order were not fixed). The question set that formed the basis for the interviews is included in appendix A (section 7.1). Towards the end of the project, some shorter telephone interviews were also carried out to fill specific gaps in knowledge identified from earlier interviews. In addition to the interviews with HSE staff carried out as part of this project, information included in Wilson (2003) was also drawn upon as part of the study. Wilson (2003) details the findings from an earlier scoping study carried out by the Central Intelligence Unit of the Hazardous Installations Directorate of HSE to examine how HSE learns from accidents and passes those lessons on to industry.

In total, 28 interviews with HSE staff were carried out. Of these, 14 interviews covered the following industrial sectors: construction; manufacturing; utilities; health services; nuclear; major hazard pipelines; chemical process plant; agriculture; railways; food; local authorities; commercial and consumer services; and offshore. In addition, 14 interviews with other staff from the following parts of HSE were carried out: electrical and control systems and process safety corporate topic groups; Health and Safety units; Field Operations Directorate (FOD) operational strategy; policy group; operational policy division; safety and enforcement statistics unit; and members of the Executive and the Commission.

1.2.3 Interviews with representative industry bodies

Interviews were also held with a small sample of industry representatives. The industry representatives chosen for interviews were identified during the interviews with HSE staff. The majority of industry contacts identified to form the subject of interviews were specifically chosen such that they were able to represent the views of different sectors of industry, rather than just representing the views of individual companies. The majority of industry contacts were therefore representatives of trade associations and similar industry bodies. In addition, a few interviews were held with representatives from individual companies identified by HSE staff as demonstrating good practice in learning lessons.

The majority of the interviews with industry representatives were conducted face to face, using a semi-structured format (i.e. there was a range of topics to cover, but the exact questions and order were not fixed). However, to maximise the number of people that could be interviewed within the time and cost constraints of the project, some of the interviews with industry representatives were completed by telephone. The question set that formed the basis for the interviews is included in appendix B (section 7.2).

In total, 16 interviews with representatives from the following organisations were carried out:

- Air Accidents Investigation Branch;
- Energy Networks Association;
- Engineering Employers Federation;
- Federation of Small Businesses;
- Glasgow Accident Analysis Group;
- Institute of Chemical Engineers;
- Institution of Civil Engineers;
- John Kingston Associates;
- National Patient Safety Agency;

- Rail Safety and Standards Board;
- Royal Society for the Prevention of Accidents;
- Scotch Whisky Association;
- STEP change;
- Transco;
- UK Offshore Operators Association;
- Union of shop, distributors and allied workers.

It was also identified that it would be useful to talk to representatives from a wider range of professional institutions, for example the Institute of Mechanical Engineers, and others, to explore further their role or potential role in the learning lessons process. However it was not possible to carry out additional interviews within the time and cost constraints of the project.

1.3   STRUCTURE OF REPORT

In section 2 and appendices C and D (sections 7.3 and 7.4), detailed findings from the interviews with HSE staff and representative industry bodies on the existing systems and arrangements in both HSE and industry for identifying and promulgating lessons learned from interviews are presented. The findings from the literature review are also presented in section 2.

Key principles for effective learning and good practice guidelines are presented in section 3. These have been drawn out from a detailed review and analysis of the information collated during the study. Key findings with respect to existing arrangements in both HSE and industry have been summarised in section 4, and identified weaknesses and gaps in existing arrangements are presented in section 5 in the form of barriers to learning and areas for improvement.

Finally, in section 6, recommendations arising from the work are outlined, including the development of options for remedying the identified weaknesses and gaps in existing arrangements.

2   EXISTING ARRANGEMENTS IN HSE AND INDUSTRY

Findings from the interviews with HSE staff and representative industry bodies are presented in this section, and in appendices C and D (sections 7.3. and 7.4 respectively). In section 2.2, details of global (or cross sector) processes and systems for the analysis of accident statistics within HSE are described, and section 2.3 includes details of other recently completed and ongoing related HSE projects that have been identified during the interviews with HSE staff. Other global (or cross sector) processes and systems are described in appendix C (section 7.3), and detailed information on sector specific arrangements is presented in appendix D (section 7.4).

The interview findings include detailed information about what currently happens in HSE and the UK industrial community in terms of the existing systems and arrangements for identifying and promulgating lessons learned from incidents. As these findings are based on a sample of interviews, they cannot be considered fully comprehensive. However, the sampling approach adopted was chosen to ensure that the sample included all major sectors of industry, covering the majority of UK employees. In addition, one of the key aims of the work is to identify existing examples of good practice for which a sampling approach is ideal.

Background information on relevant regulatory requirements has been included in section 2.1, and the findings from the literature review are presented in section 2.4.

2.1   RELEVANT REGULATORY REQUIREMENTS

A number of regulations include either explicit or implicit requirements to learn lessons, or to undertake certain elements that would form part of any effective learning lessons system. A summary of the requirements of key regulations and other relevant regulatory initiatives is included in this section.

2.1.1   Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR, 1995)

An element of any learning lessons system will be the need to record information on accidents and incidents about which lessons should be learned.

The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR, 1995) requires the reporting of work-related accidents, diseases and dangerous occurrences. It applies to all work activities, but not to all incidents. The regulations apply to employers, the self-employed, and those in control of work premises.

The following categories of incident should be reported:

- Deaths;
- Major injuries;
- Accidents resulting in over 3 day injury;
- Diseases;
- Dangerous occurrences;
- Gas incidents.

Definitions for each of the reportable categories are included in the regulations (RIDDOR, 1995).

All relevant accidents, diseases and dangerous occurrences must be reported to the Incident Contact Centre (ICC). The ICC was established on 1 April 2001 as a single point of contact for receiving all incidents in the UK. The ICC will forward details of incidents to the relevant enforcing authority. For the following businesses this is the environmental health department of the local authority: office-based; retail or wholesale; warehousing; hotel and catering; sports or leisure; residential accommodation, excluding nursing homes; places of worship; pre-school child care; mobile vending. For all other types of business this is the area office of the HSE.

As well as reporting all relevant incidents, the RIDDOR (1995) regulations also include the requirement to keep a record of any reportable injury, disease or dangerous occurrence. This record should include the date and method of reporting; the date, time and place of the event; personal details of those involved; and a brief description of the nature of the event or disease.

2.1.2 The Management of Health and Safety at Work Regulations (1999)

The Approved Code of Practice (ACOP) for the Management of Health and Safety at Work Regulations (MHSWR, 1999) includes both implicit and explicit requirements to investigate incidents and learn lessons from incidents.

The requirement to investigate incidents is implicit in regulation 3 of MHSWR (1999), the requirement to carry out suitable and sufficient risk assessments of all work activities. The regulation requires employers to review and, if necessary, modify their risk assessments if developments suggest that it may no longer be valid (or can be improved). Accidents, ill-health or dangerous occurrences are suggested as events that should be a trigger for reviewing the original assessment, and it is implicit that an investigation of such incidents would be carried out as part of the review.

The requirement to investigate incidents is also explicit in regulation 5 of MHSWR (1999). Here it states that monitoring of health and safety arrangements includes "adequately investigating the immediate and underlying causes of incidents and accidents to ensure that remedial action is taken, lessons are learnt and longer term objectives are introduced". In addition, it states that "it may be appropriate to record and analyse the results of monitoring activity, to identify any underlying themes or trends which may not be apparent from looking at events in isolation".

Appendix 5 of HSE (1997) (HSG65, Successful health and safety management) provides a useful starting point for any investigation.

2.1.3 The Control of Major Accident Hazards Regulations (1999)

The Control of Major Accident Hazards Regulations (COMAH, 1999) include explicit requirements to report and investigate major accidents and near misses.

The COMAH (1999) regulations require that the operator has adopted and implemented procedures for the ongoing assessment of compliance with the objectives set by the major accident prevention plan (MAPP) and safety management system. The operator is required to adopt and implement a system for reporting major accidents and near misses, particularly those involving failure of the protective measures for control of major accident hazards. In addition, the operator is required to adopt and implement mechanisms for investigation and taking corrective action:

a) in cases of non compliance with the objectives set by the MAPP; and

b) in relation to major accidents and near misses.

The presence of such systems should be demonstrated in the safety report. The reason for these requirements is that in order to learn from the results of active and reactive monitoring the operator needs systems for investigation to determine the immediate and underlying causes of failure. This information then needs to be used to determine the necessary corrective action.

2.1.4 Investigating accidents and incidents – a workbook for employers, unions, safety representatives and safety professionals (HSE, 2004)

The investigation of accidents is an essential component of an effective system for learning lessons from incidents. Many employers agree with this, and carry out incident investigations, but this is not universal and practices vary across different industries and businesses.

In September 2001 the HSC published a consultation document outlining proposals for a new duty to investigate accidents, dangerous occurrences and diseases (HSE, 2001). This followed an earlier consultation on whether or not to make more explicit in law requirements for employers to carry out incident investigations. It was envisaged that the new duty would arise from an amendment to the Management of Health and Safety at Work Regulations (MHSWR 1999), although other legislative options were also being considered.

Following the consultation exercise, the HSC decided not to proceed with a statutory duty at the current time, but instead to produce new guidance for industry on accident investigation. This new guidance on how to investigate accidents and incidents, including near misses (HSE, 2004) was prepared in consultation with industry, unions and health and safety professional bodies. The guidance is intended as a first step in introducing organisations to the benefits of carrying out investigations and the methods by which accidents should be recorded, investigated and the findings acted upon. It is aimed primarily at SMEs where it is often difficult to build up an expertise in investigating, although larger organisations may also find it helpful.

The four steps featured in the guidance are:

- The gathering of information;
- The analysing of information;
- Identifying risk control measures;
- The action plan and its implementation.

2.2 ANALYSIS OF ACCIDENT STATISTICS IN HSE

2.2.1 Central accident analysis in HSE

The Safety and Enforcement Statistics (SES) Unit of COSAS is the official source of HSE statistics. SES have two main areas of work: publishing annual statistics; and handling both internal (HSE) and external (public/industry) queries. Both of these include analysis of accident statistics to varying levels of detail.

Health and Safety Statistics Highlights is an annual publication (published in November each year) that summarises the latest statistics on workplace fatalities, injuries and work-related ill-health in Great Britain. These statistics are based on incidents notified by employers and others under the RIDDOR regulations, supplemented by injury statistics from the Labour Force Survey. The annual publication also includes summary information on dangerous occurrences, working days lost, gas safety and enforcement action by HSE and local authorities.

The annual Health and Safety Statistics Highlights publication includes high level analysis of accident statistics. As well as reporting trends in the total number and rate of fatal, major and over 3 day injury to employees and members of the public for industry as a whole, trends are also reported for specific sectors of industry and specific hazards. For example, in the 2002/03 publication (HSC 2003), trends are also reported for the HSE Revitalising Health and Safety priority sectors (agriculture; construction; and health services), and priority hazards (falls from height; slips, trips and falls; workplace transport; stress; and musculoskeletal disorders), as well as for selected other sectors of industry (extractive and utility supply; manufacturing; and services).

SES also routinely carry out more in-depth analysis of particular topics (data and commentary are provided on the HSE website at www.hse.gov.uk/statistics). This includes, for example the breakdown of injuries to employees and the self-employed by kind of accident, severity of injury and industry, as well as analysis by age, gender, working patterns, site of injury (on the body), and nature of injury. With the exception of their inclusion in the annual publication, the unit is not responsible for the collation and analysis of ill-health statistics. This is carried out instead by the Epidemiology and Medical Statistics Unit of COSAS.

Responding to queries can sometimes require even more detailed analysis of accident statistics; such analysis is restricted by the data available, e.g. RIDDOR classifications. The nature of the analyses that are carried out are driven by what the customer (either internal or external) wants to explore. Internal requests tend to be driven by HSE strategy.

2.2.2 HSE FOCUS and COIN databases

FOCUS is a HSE database, to record the results of operational interventions, that is used by sectors and operational staff to carry out analysis of incidents and accidents. The FOCUS database is due to be replaced by a new system, COIN, that is currently under development. COIN will provide a common platform for collecting information on all operational contacts with duty holders and will offer better search facilities. A prototype system has been developed and testing is ongoing. Implementation and roll-out of the COIN system is scheduled to begin in Spring 2005.

Prior to the advent of the ICC, FOCUS contained details of all incidents reported under the RIDDOR (1995) regulations, as well as details of all HSE incident investigations. Details of all incidents reported under RIDDOR were input into FOCUS by HSE area offices. After the ICC was established, initially data from the ICC was down loaded into FOCUS overnight (and some checks on data quality were carried out). More recently, only accident data that meets the HSE investigation criteria is now included in FOCUS and there is a separate ICC database of all incidents reported under RIDDOR. Only limited checks on the data in the ICC database are carried out and there are some classification problems.

2.2.3 Problems of under-reporting and SIC mis-classification

There are two significant problems that need to be taken into account when carrying out analysis of accident data: under-reporting and Standard Industry Classification (SIC) mis-classification.

Under-reporting is a problem in many sectors of industry, and this is significant since if reporting levels are low, the accident data will not provide the full picture of accidents that have occurred and analysis of such data may be of limited use in determining the real problem areas. In HSC (2003), levels of reporting of employee injuries (i.e. major and over 3 day injuries) are estimated at 41.3% for 2001/02 based on comparing information provided in the Labour Force

Survey with rates of injury reported under RIDDOR (that is, the average level of under-reporting is estimated to be almost 60% across all sectors of industry). For the self employed population, levels of under-reporting are thought to be much worse, with levels of reporting of employee injuries for this group estimated at only 3.7% for 2001/02 (that is, 96% under-reporting).

The level of reporting is likely to be different in different sectors of industry. For example, in the offshore sector, it is estimated that 80 to 90% of RIDDOR reportable incidents are reported as a result of initiatives in the industry following the Piper Alpha accident in 1987. HSL is currently carrying our research for SES to explore further the trends in levels of reporting in the manufacturing and services sector.

Analysis of accident data by sector is also made less accurate as a result of problems with SIC mis-allocation. Each sector of industry has a unique SIC code, and this code is included as one of the entries on the RIDDOR report, and this information is used to carry out analysis of the data by sector. However, it is recognised that there is a degree of mis-classification of SIC codes within the data that needs to be taken into account in any analysis by sector. The level of SIC mis-classification is also likely to be different for different sectors, therefore being more of a problem in some sectors than others. Previous research by HSL has found levels of mis-classification in FOCUS of around 4% in the paper industry (Bottomley and Horbury, 1998), and of between 64 and 76% in the cotton industry (Collins and Bottomley, 2001). Within HSE sectors, significant amounts of 'data cleansing' are carried out to address this problem when carrying out analysis of data by sector.

2.3   RECENTLY COMPLETED AND ONGOING RELATED HSE PROJECTS

Five recently completed or ongoing HSE projects that are of relevance to this project were identified during the interviews with HSE staff. The specific identification of such projects was outside the remit of this study, and consequently there may be other relevant projects also ongoing or completed recently that did not come to light.

Brief summaries of the five projects that were identified during this study are included in this section; these are particularly of relevance to the consideration of any weaknesses and gaps in existing arrangements and for the development of recommendations for the way forward.

2.3.1   Operational Process Improvement Project (OPIP)

The Operational Process Improvement Project (OPIP) started in April 2003 with the following aims:

- To identify areas where process improvements can be made within HSE's core operational activities;
- To produce agreed process descriptions for the COIN developments;
- To produce one set of agreed corporate operational procedures for core business activities that will facilitate a common operational information system.

Of relevance to this project is work completed under OPIP concerned with reviewing the investigation, inspection and enforcement processes across Operations Group (OG). The review was completed in September 2003 and a number of issues were identified. This work has led to the proposal that the OPIP project team develop an OG-wide investigation procedure that covers the issues raised from the review.

The OPIP project team have developed a draft OG-wide investigation procedure. The draft procedure includes the following element of relevance to the wider process of learning lessons:

- The requirement to advise all interested parties of the outcome of the investigation and any proposed action.

The OPIP review work has also resulted in a number of suggestions for improvements to be taken forward within COIN. It is felt that the development of COIN will provide opportunities to streamline the investigation process at both the initial phases and at the recording stage. The main areas for potential improvements are with the ICC/COIN interface and the scheduling and management of work activities. In addition, the introduction of a common OG investigation template (to be linked in COIN) should also provide better quality and more consistent information.

The issue of capturing and recording the findings from incident data, in particular information on causal factors is also currently being considered by Operational Policy Division in relation to OPIP. The advent of COIN represents an opportunity to capture, for example, information on causal factors in a way that allows subsequent analysis and interrogation (e.g. to capture the information in a systematic way).

2.3.2 Evaluation of the use of chronological analytical investigation methods in HSE

A project to evaluate the use of chronological analytical investigation methods in HSE (using the Noordwijk Risk Initiative Foundation's Events and Causal Factors Analysis plus (ECFA+) approach as the normative method) started in February 2004 [Dickety, 2004] with the following aims:

- To identify the extent to which chronological analytical investigation methods are being used within HSE;
- To conduct an appraisal of these techniques with reference to ECFA+ as the normative model;
- To identify strengths and weaknesses in HSE's approach to incident investigation.

Interviews with over 30 inspectors from FOD and HID with experience of using ECFA were carried out, using a combination of semi-structured interviews and focus groups.

This project's findings are as follows:

- Chronological analytical investigation methods can be seen as a set of related tools that are associated with a number of tasks undertaken in investigations carried out by HSE inspectors;
- A number of common features of the different methods reviewed were identified, for example: using a team approach; recording events in chronological order; using conditions and events and charting the inter-relationships;
- Compared to ECFA+, the normative method, some of the other methods were not as rigorous.

The following strengths with using such techniques were identified:

- The techniques are robust with regard to evidence collection and completeness, i.e. as a control against attribution bias and consistent with the principle of pursuing all lines of enquiry;
- The techniques can act as a valuable communication tool, both internally (e.g. as a means of passing information to inexperienced inspectors) and to external stakeholders (e.g. to facilitate the explanation of complicated issues in a simple way);
- Use of the techniques facilitates organisational learning;
- Use of the techniques assists with team working, knowledge sharing and insight;
- The techniques can act as a useful evidence management tool (gaps in the evidence chain are readily identified).

The following weaknesses were also identified:

- The resource implications of pursuing ECFA+ in its purest form can be very significant;
- The decision style does not suit some inspectors, and the approach does not readily lend itself to identifying breaches in law;
- Practical considerations associated with using ECFA+ (e.g. the need for a long wall and post-it notes etc. to chart the event chronology);
- Presentational weaknesses (e.g. use of post-it notes etc. does not look professional).

Conclusions and recommendations of relevance to this project are that:

- Trainee inspectors should be exposed to a range of analytical investigation methods to assist them with the task of accident/incident investigation;
- ECFA+ should be included within the suite of techniques;
- Details of analytical investigation techniques should be recorded and stored centrally (e.g. ECFA+ chart library) so that common mode failures can be identified and shared across the organisation as learning points.

2.3.3 Knowledge management in sectors

A project to investigate and (if required) improve knowledge management in HSE sectors began in May 2003. The aim of the project was to address a three fold problem facing sectors in the area of knowledge management:

- The need to retain existing knowledge (in an accessible format) to avoid repetition;
- The need to respond effectively to various stakeholders on a variety of topics;
- The need to work efficiently and share solutions and ways of working within and across sector boundaries.

The project working group recognised at an early stage that there is no one "solution" to knowledge management, and instead explored various ways to tackle the issue. They concentrated on sharing best practice and investigating projects inside and outside HSE that have the potential to help knowledge management in sectors.

The work is ongoing, and the project has produced the following outcomes to date:

- Piloting of Sector Communities based on Group Communications software;
- Provision of sector views into other HSE projects, including COIN and EDRM (Electronic Documents and Records Management); this is also ongoing.

A number of sectors are trialing Sector Communities based on Group Communications software, and this offers significant benefits to both knowledge management and communication (internally and externally). The Communities established as a result include: Asbestos Licensing; NFIT; Air Transport Unit; Agriculture; Construction; and Manufacturing. Other trials are planned. Feedback from sectors to date has been very positive; the software has facilitated remote management, reduced multiple copies of documents, promoted consistency and confidence (staff know the documents are up to date) and promoted a more open culture (measured by the number of discussions promoted and ideas shared). Problems exist, but those sectors using it are enthusiastic and are already reporting cost savings.

Work is also ongoing to:

- Rationalise the sectors' web presence;
- Look at the way corporate instructions are delivered (e.g. appropriate systems to replace Sector Information Minutes (SIMs) etc., in collaboration with Operational Policy Support Division.

2.3.4 Electronic Documents and Record Management (EDRM)

The EDRM project is part of an ongoing review and update of HSE's policy for retention and disposal of information. The EDRM project will help staff determine which documents and records should be kept and which should not. The implementation of an EDRM system should reduce the holding of duplicate documents, including e-mails and so reduce IT storage costs.

Based on the findings of the project, preparations for implementing an EDRM system across HSE are underway and a draft records plan has been developed. This includes retention policies for printed and electronic records for all of HSE's functions, in line with those proposed for COIN.

2.3.5 Learning from incidents involving electrical/ electronic or programmable electronic (E/E/PE) systems

HSE recently commissioned a research project to create a scheme for learning from incidents that involve electrical/electronic or programmable electronic (E/E/PE) systems (HSE, 2003a, 2003b, 2003c). This work involved reviewing existing learning processes and causal analysis techniques, examining industry practice and recommending a new scheme. The final part of the project was to provide accompanying guidance, examples and rationale.

The initial requirements were for a scheme that could be adopted by companies and organisations to help them learn from incidents that involved E/E/PE systems, whilst fitting with existing safety and quality management systems and satisfying legal and regulatory requirements. The scheme should be applicable to a wide range of sectors and should allow root causes to be classified using a common taxonomy to aid a consistent characterisation, retrieval and analysis.

The research concluded that for lessons to be learned from any kind of incident, the following processes are necessary:

- *Incident reporting:* staff who witness an incident must report sufficient details for safety managers to investigated further or analyse for trends where appropriate,
- *Incident prioritisation:* the recipients of incident reports decide to what extent incidents represent leaning opportunities,

- *Incident characterisation and investigation:* safety managers analyse selected reports and if necessary investigate further to enable them to generate recommendations to reduce the probability of other incidents with similar causes. Characterisation of data is necessary if it is to be collated for trend analysis,
- *Response in working context:* recommendations must be implemented in the original working context for any benefit to be realised, they must be realistic and tracked to completion,
- *Dissemination:* It is desirable to disseminate lessons learnt to others. If others provide such information, each site or company needs their own procedures for acting on it.

The work also investigated barriers to new learning schemes and found typical ones to include: lack of motivation, lack of perceived benefits, the implementation cost and the complexity of the scheme.

2.4 LITERATURE REVIEW

As stated in section 1.2, it was not the intention to carry out a fully comprehensive review of the literature on learning lessons as part of this project. It was recognised that there is a huge volume of literature in this field, much of which relates to the mechanisms that would be put in place as part of a learning lessons system, which is outside the remit of this work. Instead, the literature review focussed specifically on material concerned with the policy and principles of learning lessons. In addition, a selection of key references that included particularly valuable information relating to mechanisms for elements of the learning lessons process were identified and briefly reviewed.

2.4.1 Learning Lessons systems

US Department of Energy Lessons Learned Programs [DoE, 2004]

The US Department of Energy (DoE) have developed a corporate lessons learned program. This consists of a Standard, a Handbook, a Society, website and database (DoE, 2004). The Standard is a framework to support the development and implementation of a DoE-wide learning lessons infrastructure that supports and promotes the identification and communication of lessons learned by the DoE and its contractor personnel. The objective of the Standard is to enhance the lines of communication among learning lessons activities without impacting on existing processes and methods. It is also designed to promote improved sharing of lessons learned and the identification and sharing of good practices. The Handbook sets out how the lessons learned program should be implemented.

The Society for Effective Lessons Learning Sharing (SELLS) [SELLS, 2004] is a volunteer organisation comprised of members from various DoE programs. Its mission is to promote the identification, sharing and utilisation of lessons learned from experiences within the DoE complex and outside in order to improve safety. Its primary goals are:

- To develop an organisational culture that recognises the value of learning lessons and encourages information sharing,
- To create sharing links across DoE,
- To build lessons learned networks with external organisations, and
- To disseminate information about SELLS and the DoE program.

The society has produced a series of fact sheets containing information on issues such as dissemination methods.

Learning from Disasters – A management approach [Toft and Reynolds, 1994]

Toft and Reynolds (1994) suggests that by looking at disasters as systems failures it is possible for organisations other than those involved in the incident to learn far more than would first appear to be possible. It recognises that the past is a valuable source of information on how systems will respond in the future, whilst acknowledging that situations will never recur in exactly the same way. Often, investigations do not determine all the underlying causes and there is a tendency to concentrate on technical causes rather than organisational and social causes which are prevalent in many disasters. Additionally, recommendations following a public inquiry are often confined to those that have been directly involved in the disaster when a broader community might benefit.

They argue that by taking a systems approach, and by understanding accidents as systems failures, you can see underlying similarities in how those failures might occur in very different types of organisations. Therefore, organisations operating in dissimilar fields may be able to learn from each other's experiences. The development of systems that feed back information on accident causation are discussed. This feedback requires a safety culture which allows the formation of 'active foresight' within an organisation. Active foresight has two elements, the foresight of conditions and practices that might lead to a disaster and the active implementation of corrective measures determined from that foresight.

Learning from Accidents [Kletz, 2001]

The aim of Kletz (2001) is to show how we can learn more from accidents and be better able to prevent them reoccurring by analysing past accidents. It discusses the many levels of an accident investigation from the immediate technical causes to the underlying causes such as weaknesses in the management system. Often only immediate causes are considered and thus not all the information available has been used. It is not suggested that the immediate causes of an accident are less important than the underlying causes but that all must be considered to prevent further accidents. Putting the immediate causes right will prevent the same accident happening again, whilst attending to the underlying causes may prevent many similar accidents. The book is not primarily concerned with the collection of accident information but with the further consideration of facts already collected.

Learning from Safety Failure [RoSPA, 2001]

RoSPA (2001) recognises that although many businesses have made progress in understanding risk assessment, many are still failing to gain maximum benefit from their approach to the investigation of incidents. As a result they are failing to learn vital lessons that could improve their health and safety management. The paper discusses essential aspects of investigation:

- Taking prompt emergency action
- Prompt reporting
- Securing the scene
- Deciding on the level of investigation according to the safety significance or learning potential
- Gathering evidence
- Analysing and integrating the evidence
- Identifying gaps and seeking further evidence or clarification
- Developing and testing hypotheses
- Generating conclusions and recommendations
- Communicating recommendations and tracking closure with stakeholders

It also discusses barriers to learning from failure including the tendency for organisations and individuals to be highly defensive rather than encouraging a culture of openness and the attribution of blame rather than searching for root causes. The paper also lists some major pitfalls in accident and incident investigation.

2.4.2 Accident Investigation

A text often referenced on the subject of accident investigation is Modern Accident Investigation and Analysis by T.S Ferry [1998]. This states that there are three key elements to successful accident investigation; being thoroughly prepared for an investigation prior to an accident, knowing how to gather and analyse the facts surrounding an accident, and having a good accident report that serves as a basis for corrective actions and process evaluation. 12 steps to a thorough investigation are listed:

- Understand the need for investigation
- Prepare for an investigation
- Gather the facts
- Analyse the facts
- Develop conclusions
- Analyse conclusions
- Make a report
- Make appropriate recommendations
- Correct the situation
- Implement the recommendations
- Critique the investigation
- Double-check the corrective action

Kletz [2002] looks at missed opportunities in accident investigation. He points out that most accidents need not have occurred as similar ones had happened before and been described in published reports. Someone knew how to prevent them even if the people on the job at the time did not. This suggests that accident investigations, safety training and the availability of information are not working properly. Missed opportunities in accident investigation are listed as:

- Finding only a single cause, often the final triggering event
- Finding only immediate causes rather than ways of avoiding the hazard or weaknesses in the management system
- Listing human error as a cause without saying whether it was due to ignorance, a slip or lapse or a non-compliance
- Listing causes we can do little about or are impossible to remove
- Changing procedures rather than designs
- Not helping others to learn as much as they could from our experiences
- Forgetting the lessons learned and allowing the accident to happen again

2.4.3 Dissemination of information

It is widely recognised that the chemical industry as a whole does not learn from past accidents [Jefferson, 1997]. The problem to be addressed is the dissemination of information on past accidents and near misses in such a form that it can be easily recalled and the lessons are not forgotten. These lessons cannot be learned by industry as a whole unless the information is made widely available. There is often unwillingness in some companies to release data, perhaps

because it might give them a competitive advantage and will not endanger their reputation. Anonymising reports can help and the IChemE publication, The Loss Prevention Bulletin is a useful publication for the reporting of accidents.

Mellin and Bond [2000] state that to achieve improvements in health, safety and environmental performance it is necessary to have effective systems for learning lessons from incidents occurring both within and outside an organisation. The workforce has a responsibility for networking on accidents in similar organisations. To meet this objective, the organisation needs to establish a culture that recognises and accepts responsibility for sharing and acting upon information on accidents that occur within and outside the organisation. The paper outlines the requirements of a database and management system to address this challenge.

Beale [2002] discusses how lessons learnt from accidents in the railway industry have raised issues that are applicable to the process industries, particularly regarding safety management, human factors, management of contractors and organisational structures. Early accident investigations focused on the specific technical or direct human causes of the accidents. However, as more knowledge has been obtained, more attention is being paid to the wider issues of safety management system failures that often lie at the root cause of accidents. The paper explores the opportunity for learning from accidents in one industry and applying the lessons to another industry by reviewing published accident reports.

2.4.4 Corporate memory

Kletz [1993] in 'Lessons from disaster – How organisations have no memory and accidents recur' states that although it might seem to an outsider that industrial accidents occur because we do not know how to prevent them, they occur because we do not use the knowledge that is available. Organisations do not learn from the past, or more likely, individuals learn and then leave the organisation taking their knowledge with them and the organisation forgets as a whole. The book describes accidents that have been repeated many times, mainly in the process industries. It also suggests some ways to improve corporate memory including:

- Spreading the message, the first step in remembering a message is to make it available, i.e. publish accident reports
- Discussions are better than lectures, a talk may convey the message of an accident better than the written word especially if illustrated by slides of the damage caused
- Remembering the message, seeing that lessons are not forgotten is often not done at all and by the time those who witnessed the accident have left the organisation, the accident is ready to happen again. A list of actions is given.
- Finding old reports, making these accessible will help the organisation recall the lessons of the past. It is suggested that a database of information is developed containing a mixture of abstracts of accident reports and recommendations.

2.4.5 Accident databases

A number of accident databases exist in the public domain including MARS (the EU's Major Accident Reporting System), MHIDAS (HSE's Major Hazard Incident Data Service) and IChemE (Institution of Chemical Engineers) databases:

- The MARS database was established to handle the information on major accidents submitted by Member States of the European Union to the European Commission in accordance with the Seveso Directive. Two reporting forms have been established; the short report is intended for use for immediate notification of an accident and the full report is prepared when the accident has been fully investigated and the causes and

consequences are fully understood. The short report gives essential information concerning the accident, in a free-text format, under headings that include immediate causes and lessons learned. The full report goes into more detail and looks at underlying causes.

- The MHIDAS database was set up to help HSE ensure that risks from major hazards are controlled by making people aware of major accidents that have occurred involving dangerous substances. This information is required by HSE as a regulator, by the industries that are responsible for these risks and by others involved in controlling these risks. A public access data service based on the MHIDAS accident database was established in 1985. The database contains coded information on reports of some 8000 major accidents that are in the public domain. The database is updated quarterly and is available to users via various media, including compact disc and the internet.

- The IChemE database gives access to information on incidents within the process and chemical industries during manufacturing, transportation, storage, laboratory scale, construction and decommissioning; in addition to significant incidents from other industries. The information and search technique has been developed to help users learn lessons from past incidents. It is designed to be used as a resource for the identification of hazards and review of operating procedures during the design and operation of a process.

The IChemE also publish the Loss Prevention Bulletin, a journal that is a source of safety case studies for the process industries. This publication has the aim of allowing its readers the opportunity to learn vital safety lessons from other companies.

Accident databases should in theory keep the memory of past incidents alive and prevent repetitions but they have been used less than expected [Kletz, 2003]. A major reason is that databases are only interrogated when an individual suspects that there might be a hazard. A number of publications [Bond, 2003; Jefferson, 1997; Kletz, 2003] discuss accident databases that can be linked to design, risk assessment and Hazop software. With such a system, if the user of these software packages types a particular word, the computer will signal that the database contains information on this substance, subject or equipment.

3 KEY PRINCIPLES FOR EFFECTIVE LEARNING AND GOOD PRACTICE

A detailed review of the information collated on the existing arrangements in HSE and industry with respect to learning lessons has been carried out, and good practice guidelines on how to learn lessons and share information have been drawn out.

An effective system for learning lessons from incidents would need to include the following elements:

- An incident/accident reporting system;
- A process for incident investigation that ensures that the underlying as well as immediate causes of accidents and incidents are understood, taking full account of human and organisational factors;
- A process for analysing cumulative information on accidents and incidents from both internal and external events;
- A process for ensuring that the findings of incident investigation and analysis of accident and incident data are acted upon in a timely fashion and suitable interventions put in place or modifications made to prevent a recurrence of the incident or similar incidents;
- A process for evaluating the success or otherwise of interventions and modifications;
- A process for disseminating information on accident and incident causation and suitable interventions/modifications to all relevant parties (both internal and external), as quickly as possible;
- A system to capture the information in a format that is readily searchable and retrievable to allow ease of access, so that any lessons learned stay learned (corporate memory).

In a well managed organisation, the elements of an effective learning lessons process outlined above (with the exception of elements of dissemination of information) should form part of a good health and safety management system. That is, it should not generally be necessary to specifically have a separate learning lessons system.

It should also be noted that employee involvement is essential for the process and systems listed to be effective. The role of employees, including safety representatives, is particularly important for effective incident reporting and investigating systems.

Each of the elements identified above can be broken down into a number of sub-elements that can be considered to represent good practice principles in each area. These sub-elements are described in sections 3.1 to 3.7. Where possible, examples of the application of these good practice principles in existing arrangements within HSE and industry are also highlighted.

3.1 INCIDENT/ACCIDENT REPORTING SYSTEMS

An incident/accident reporting system is a key element in any system for learning lessons. If incidents are not reported, lessons cannot be learned. Therefore, to have maximum utility, an effective reporting system would encourage reporting and there would be high levels of reporting. Examples of good practice in this respect have been described in the aviation and offshore industries (sections 7.4.2 and 7.4.11 respectively).

The content and format of the information that is captured by the reporting system is also very important. To enable effective analysis and interrogation of accident data, causal information (including both immediate and underlying causes) needs to be captured in a format that is readily searchable and retrievable.

3.2   INCIDENT INVESTIGATION

An effective process for incident investigation would have the following elements:

- A system for determining which incidents should be investigated, i.e. be able to identify those incidents where the circumstances will give rise to new lessons;
- The availability of appropriate investigation methods and techniques;
- A system for ensuring the competence of personnel in the selection and application of appropriate techniques, which would include training in the use of suitable techniques.

Appropriate investigation techniques would include methods for the investigation of underlying as well as immediate causes, and for the investigation of human and organisational factors. The use of appropriate techniques should also ensure that all relevant people are involved in the investigation, so that important information is not missed. For example, this is likely to include any individual(s) involved in the incident, line management, safety representatives, etc.

It is also important that there is appropriate 'ownership' of the investigation; it needs to be owned by people within the organisation who have the power to make sure that the findings are acted upon and that appropriate changes and interventions are carried out.

3.3   INCIDENT/ACCIDENT ANALYSIS

An essential element of an effective system for learning lessons is the analysis and interrogation of aggregate accident/incident data. Lessons may be learned from analysis of groups of accidents that would not be apparent from separate analysis of individual incidents in isolation. Only by analysing groups of accident/incident data is it possible to generate detailed accident profiles, identify some underlying causes, and identify themes and trends in accident causation. These can have an important influence on the development of intervention plans, and could also contribute to the evaluation of the impact of initiatives or interventions. Examples of good practice in the analysis of accident data within HSE have been described in the agriculture, food and hazardous chemicals sectors (sections 7.4.1, 7.4.5 and 7.4.7 respectively).

In an ideal learning lessons system, such analysis of data would be carried out for both internal and external events (that is, events occurring within a company itself, and in other companies), and the analysis of external events would include events from within and outside the sector, and both nationally and internationally. Good practice in the analysis of accident data from both internal and external events (within the sector) has been described in the aviation and offshore sectors (sections 7.4.2 and 7.4.11 respectively).

3.4   ACTING ON THE FINDINGS FROM INCIDENT INVESTIGATION AND
ACCIDENT ANALYSIS

It is essential that the findings from incident investigation and accident analysis are acted upon and that action is taken to prevent a recurrence of the incident or similar incidents. An effective system for acting on the findings from incident investigation and accident analysis would have the following elements:

- A process for reviewing lessons learned from incident investigation and accident analysis, within a reasonable time of incidents/investigations having taken place;
- A process for developing appropriate intervention plans, including designated responsibilities for implementing corrective actions and timescales for implementation of any interventions or modifications;
- A process for tracking progress against the intervention plan to ensure any actions identified are implemented, and that this occurs within reasonable timescales.

This is an area in which the current arrangements within industry are relatively weak, however a few examples of good practice in particular elements of the process have been found. For example: in the food sector (section 7.4.5) an example of a company reporting system that includes the allocation of corrective actions was described; in the pipelines sector (section 7.4.12), an action tracking system used by Transco, and against which they are audited was described; and in pipelines and utilities sectors (sections 7.4.12 and 7.4.15 respectively) systems for allocation of responsibilities for corrective actions, tracking close-out procedures and reporting any outstanding actions to the board were described. Within HSE, the hazardous chemicals sector (section 7.4.7) have used the findings of accident analysis to inform interventions under the national plant integrity project being carried out on onshore chemical plant.

3.5 EVALUATING INTERVENTIONS AND MODIFICATIONS

In addition to developing and tracking progress against intervention plans, it is important to also evaluate whether the identified interventions and actions have been effective, i.e. to evaluate whether they have had the anticipated impact in terms of preventing a recurrence of the incident or similar incidents. This evaluation should include consideration of whether any other actions or interventions would be beneficial.

This is another area in which the current arrangements within industry are relatively weak. The importance of evaluation is recognised within the HSE agriculture sector (section 7.4.1) who hold the view that it is important to check that the methods in use are successful. The sector has an ongoing research contract to develop a practical evaluation tool that they hope to use next year (to evaluate the effectiveness of methods for disseminating information).

3.6 DISSEMINATING INFORMATION

An effective process for disseminating information would include consideration of the following elements:

- The nature of the information that is to be shared (i.e. details of lessons learned);
- Identification of all relevant parties who would benefit from the information;
- Determination of appropriate communication channels;
- Identification of appropriate content and format of information to be disseminated and of appropriate dissemination methods;
- The speed with which the information can be shared with all relevant parties;
- The roles of all stakeholders in the dissemination process.

With regard to the nature of the information that is to be shared, in an effective system for learning lessons this should include details of the underlying as well as immediate causes of events so that the opportunity for learning is not limited.

In addition, for the process to be effective, different approaches will be needed to disseminate information to different target audiences (for example, different approaches will probably be needed to convey messages to firms of different sizes and with different levels of understanding). The greater the diversity of the user community, the greater the range of options required to effectively disseminate lessons learned information.

In terms of dissemination of information by HSE, in a number of sectors it has been found that industry will trust and believe other industrialists (i.e. fellow workers or trade associations) more than they would HSE. The involvement of industry, in particular trade associations, is therefore a key element for the effective dissemination of information by HSE. Industry advisory committees (IACs) and similar tri-partite groups (e.g. CDOIF in the chemical industry) have been noted as very effective dissemination routes in many sectors. The use of exemplars and case studies (to promote good practice) has also been found to be a very effective way to get messages across in a number of sectors.

An example of good practice within industry for the dissemination of information is the use of safety alerts in the manufacturing, offshore and pipelines sectors (sections 7.4.9, 7.4.11 and 7.4.12 respectively).

3.7 CORPORATE MEMORY

It is essential to capture information on lessons learned within the organisational memory so that they stay learned. For such information to have utility it needs to be captured in such a way that it is accessible, and hence needs to be captured in a format that is both readily searchable and retrievable. Good knowledge (data and information) management systems will be needed in order to achieve this. In addition, it will usually be necessary to change the culture and behaviour within organisations as well as implementing appropriate knowledge management systems in order to improve corporate memory.

4   SUMMARY OF KEY FINDINGS WITH RESPECT TO EXISTING ARRANGEMENTS IN INDUSTRY AND HSE

4.1   KEY FINDINGS WITH RESPECT TO EXISTING ARRANGEMENTS WITHIN INDUSTRY

Trade associations and other industry bodies can play an important part in the learning lessons process. The particular roles played by trade associations and other bodies in this respect varies enormously, with some being much more proactive and effective than others. The following activities are carried out by trade associations in many sectors: analysis of accidents (although this is often only at a high level, rather than looking in detail at root causes); provision and dissemination of health and safety information (sometimes in consultation with HSE); and facilitation of sharing between companies, for example by organising informal meetings between groups of health and safety managers. However, an important part of the process that is not carried out by trade associations (and that they (or their members) do not see as part of their role) is evaluation of the impact of corrective actions.

Learning lessons processes and systems

Larger companies need more formal processes and systems for learning lessons than small companies. Most large companies do tend to have some formal processes (for example, systems for recognising, investigating and recording incidents, although the quality of these is variable with some being very good and some comparatively poor), while the majority of small firms do not have any, although some do have informal processes.

There is also a high degree of variability between different sectors of industry in terms of how well developed and sophisticated the learning lessons processes and systems are. For example in the aviation, offshore, nuclear and hazardous chemicals sectors companies generally have structured and established systems. In these sectors, there are specific regulatory requirements to have particular processes or elements of a learning lessons system in place. Conversely in sectors dominated by SMEs, for example the commercial and consumer services and agriculture sectors, in SME companies such systems are generally either absent altogether or are much less formal and sophisticated.

Companies with good general health and safety management tend to also be best at learning lessons and have positive health and safety cultures; generally this is the bigger companies in major hazard/high profile industries. However, even in such companies, any learning that takes place is generally at the workplace level, occasionally at the level of risk control systems, but rarely at the organisational level or related to the underlying safety management system architecture (using terminology from HSE, 1997). That is, the companies tend to be very good at investigating individual incidents, and writing full and detailed accident reports, but weak at learning the wider lessons; they deal with immediate causes but are poor at dealing with root causes or learning wider lessons and transferring them to other situations. Companies also generally find it easier to learn lessons relating to technical or hardware issues, rather than for example human factors issues.

In the aviation and rail sectors, where there are confidential reporting systems, in addition to the mandatory and company reporting systems, processes for learning lessons are stronger. This leads to an improved capability to learn. In the aviation industry, the presence of the confidential reporting system is seen as an essential safety net to pick up incidents not reported elsewhere.

Industry sectors that are good at reporting, investigating and analysing incidents (for example the offshore and nuclear sectors) state that a key driver for them to learn lessons so that they can reduce the number of accidents and incidents is their reputation. They recognise that accidents and incidents lead to a bad public image and can damage their reputation.

Generally, smaller companies will do less than larger companies in terms of investigation of incidents, and will not go as far as root cause analysis. In addition, the focus of the company's investigations is often on the liabilities associated with the incident and managing their relationship with the insurer, rather than specifically on learning lessons.

Throughout industry there is also considerable variation between sectors in terms of the amount of analysis of accident data that is carried out. Often the analysis is purely statistical, rather than looking at root causes even in those sectors that generally have the most sophisticated systems, although some firms do carry out crude root cause analysis. Some companies carry out detailed analysis of internal data, and in some sectors of industry (for example in the aviation industry) there is also wider cumulative data analysis. As with many of the other processes, the majority of the analysis that is carried out is by larger firms. Small firms generally lack both resources and inclination, and in some sectors see this as a role for others, e.g. HSE.

In some sectors (for example in the nuclear sector) there are formal mechanisms for learning from external events. A number of industries also have semi formal mechanisms for learning from external events (for example many in the commercial and consumer services sector). Informal meetings are held between groups of health and safety managers; in many sectors, trade associations (and other similar industry associations) play a key role in organising such events and in some parts of industry HSE sectors are being pressed to further facilitate such forums. Participation in such events is usually dominated by large and medium sized firms, although some small firms do attend. However, some large companies think they have enough internal accidents/incidents that there is no need for them to look elsewhere for lessons.

Learning from international events only tends to occur in those sectors of industry that work internationally, for example nuclear, offshore, hazardous chemicals, and some parts of the commercial and services sector (e.g. broadcasting). It is unlikely that companies would routinely look abroad unless they are internationally linked.

Within industry there is generally limited awareness of other sectors or cross-sector learning or sharing of information. Companies generally see events as relevant in the same business, but not in other businesses; many industries think that issues are industry specific and not transferable. There is greater cross sector learning in relation to priority programme types of incident, for example slips and trips, and falls from height.

Health versus safety

Within industry, the approach taken to dealing with ill-health related events is generally very different to that for safety related incidents. Safety related incidents are usually immediate, and are dealt with as such, whereas ill-health incidents are usually progressive and do not always have obvious effects or dramatic consequences; as a result they tend not to be taken as seriously. It also takes longer to establish the causes of ill-health due to the latency of the symptoms. In a number of sectors there has recently been recognition that there is a need to devote greater attention to occupational ill-health. However, industry often thinks that ill-health is much more difficult to deal with partly because of confidentiality issues that reduce the flow of information, and partly due to other problems with the quality of data on ill-health and difficulties in defining occupational ill-health.

There is also much greater analysis of accidents (safety related events) than ill-health. This is partly due to the fact that there is a significant difference in the timeframe for ill-health injuries such that they are not amenable to analysis in the same way. There is also thought to be greater under-reporting of ill-health incidents than safety related incidents for a number of reasons; it is also thought that in many cases of occupational ill-health, employees leave (for example cases of occupational dermatitis) and such problems are consequently never identified.

In some sectors (for example in parts of the manufacturing sector), some companies have very good approaches to looking after staff, including occupational health schemes and well being programs as well as health surveillance schemes.

Acting on the findings and evaluating interventions and modifications

Whether company processes work or not depends to some extent on the type of event. In general, for incidents where there is a straightforward, immediate cause, things tend to work well (i.e. where the problem and solution are both clear). In less straightforward situations, for example where there are behavioural causes, the processes tend to work less well as the solutions are less obvious.

In most sectors, implementation of findings and monitoring of progress against recommendations arising from incident investigations and accident analysis is poor. This is the case even in industries that are generally good at disseminating information. It is often not clear whether lessons learned are acted upon and modifications made, or interventions put in place. Similarly, there is little evaluation of the success (or otherwise) of suggested modifications and interventions.

Disseminating information

There is considerable variability in the degree of openness and willingness to share information on accidents and incidents between companies in different sectors of industry. For example, there is generally a lack of secrecy in relation to sharing health and safety information in the food, offshore and manufacturing sectors, whereas in the pipelines and local authority sectors, people tend to be very suspicious and are generally not happy to share information about incidents. In many cases, where there is good sharing of information between companies in a particular sector, this tends to be informal; for example there may not be formal sharing at board level, but it happens informally between people holding similar positions in different companies through trade networks.

Dissemination of accident information within the sectors is usually via trade associations and trade journals, however often only technical issues are disclosed rather than underlying causes and therefore the opportunity for learning is limited. Safety alerts are also used as effective methods for dissemination of information in a number of sectors, for example offshore, pipelines and manufacturing.

4.2 KEY FINDINGS WITH RESPECT TO EXISTING ARRANGEMENTS IN HSE

Incident investigation

Throughout HSE there is inconsistency in the approach to incident investigation and the gathering and analysis of information. In many cases there is insufficient information on the underlying causes of accidents and incidents, and inadequate consideration of human and organisational factors.

In many cases, the systems for sharing information about lessons learned from individual incidents within HSE sectors are informal, relying on networks of contacts, and the knowledge, experience and proactive behaviour of individual inspectors. For example, following incident investigations, the onus is generally on the specialist or principal inspector to decide who receives a copy of the investigation report.

Incident/accident analysis

Throughout HSE there is inconsistency in the level of detailed analysis of accident data that is carried out in different sectors; in many cases there are good reasons for the use of inconsistent approaches. For example, in the agriculture sector, very detailed analysis of fatality data is carried out (the findings of which are used to inform the sector strategy), but similar analyses of other types of injury data is not conducted. This is because the levels of under-reporting in the sector for other types of injury are extremely high, and therefore detailed accident analysis would not be meaningful. In the nuclear sector, HSE carry out very little detailed analysis of accident data as substantial analysis is carried out by the industry itself and it would be inefficient to duplicate effort.

Most cross-sector learning and sharing of information in HSE is also ad hoc, relying on personal contacts. The exception to this is in the HSE priority programme areas (for example construction, manufacturing and agriculture) where there are formal systems for sharing of information. In addition, as discussed in section 2.3.3, new systems for facilitating cross-sector sharing by setting up sector communities based on group communications software are currently being trialled. The informal cross-sector sharing seems to work well.

Health versus safety

There are differences in the approach most HSE sectors take with respect to learning from ill-health compared with safety related incidents. There is currently a drive for more work on ill-health, but there are problems getting good data. Reliable health data is difficult to get hold of, but this is improving and is seen as a key issue in intervention.

Disseminating information

It is important to consider the detailed content and format of information as well as the method of dissemination carefully to ensure the message is effective. These factors need to be targeted appropriately to the intended audience. For example, different approaches will be needed to disseminate information to firms of different sizes, in different sectors, and with different levels of understanding. It is recognised that there are particular problems disseminating information effectively to small firms, for a number of reasons.

For messages to be effective (i.e. for people to notice them and take action as a result) they must have an impact and appear relevant. The use of 'personal experience' that people can relate to

(rather than for example dry statistics) can improve the impact and hence effectiveness of messages. For many firms, health and safety messages that are framed in terms of the associated business benefits may also appear more relevant.

In many sectors, HSE shares information with duty holders via trade associations and industry advisory committees (which are chaired by sector members) and subcommittees; these are valuable forums for discussion of accidents and dissemination of information. Additional promulgation routes used by HSE are specific publicity activities, SADs and SHADs, and via the HSE website.

There is a perception that industry will believe and trust other industrialists (i.e. fellow workers or trade associations) more than they would HSE, and this has been reinforced by experience in a number of sectors including manufacturing and construction. Dissemination of messages by HSE may therefore be more effective if members of the industrial community are involved directly in their delivery. HSE sectors rely on their good relationships with many trade associations to disseminate information via them, and SADs and SHADs have been well received forums for encouraging learning, particularly aimed at smaller firms in the agriculture and construction sectors respectively.

The use of exemplars and case studies (to promote good practice) has also been found to be a very effective way to get messages across. In a number of HSE sectors, the sector works with industry on developing guidance and discussing issues; the involvement of industry is recognised as a key element to ensure practicable solutions. However in some sectors, HSE is not good at capturing good practice, as there is a cultural tendency to look for faults rather than things done well. The importance of HSE guidance is also underestimated in some parts of HSE.

Similarly, HSE and industry involvement in standards work is an opportunity for dissemination within the UK and wider through CEN into the EU.

Corporate memory

Organisational learning and knowledge (data and information) management within HSE need to be improved to improve the organisation's corporate memory. The structure of the organisation and the frequent re-organisation do not help information flows or knowledge management.

It will usually be necessary to change the culture and behaviour within organisations as well as implementing appropriate knowledge management systems in order to improve corporate memory and ensure that lessons that have been learned stay learned. How to effectively influence organisational culture and behaviour is currently an active field of research.

5 WEAKNESSES AND GAPS IN EXISTING ARRANGEMENTS

In this section, key weaknesses and gaps in existing arrangements have been drawn out in the form of barriers to learning and things that could be improved. Barriers to learning have been presented jointly for both HSE and industry, but areas for improvement have been presented separately. More areas for improvement within HSE than industry have been highlighted; it must be stressed that this does not indicate that there are more areas of weakness or gaps with respect to the learning lessons process within HSE than in industry, as this is not the case. Instead, it reflects the fact that it has been much easier to identify specific things that could be done within HSE to address weaknesses or fill gaps in existing arrangements than it has been when considering industry as a whole.

5.1 BARRIERS TO LEARNING WITHIN BOTH HSE AND INDUSTRY

Key barriers to learning for small businesses are levels of compliance with regulations and lack of awareness; health and safety is generally seen as a burden on business rather than a benefit. Some industry sectors are part HSE, part LA enforced adding substantially to the difficulties in the exchange of information.

Incident/accident reporting systems

The level of under-reporting of accidents and incidents can also be a barrier to learning, as the reported accidents may not illustrate the full picture. As stated in section 2.2, under-reporting is a significant problem in many sectors of industry and the problem is greater for accidents to the self-employed, and in areas where there is seasonal or casual employment. Loss of confidence in a brand or company and the potential of letting a competitor get an advantage can lead to a reluctance to report accidents in those sectors of industry where brand image is particularly important (for example retail and some local authority enforced sectors).

The way that incidents are recorded, and the scarcity of causal information that is usually recorded also represents a barrier to learning. It is often difficult to analyse the incidents at a later stage and extract any wider lessons.

Incident investigation

The purpose of an accident investigation can sometimes itself be a barrier to learning, if learning lessons (with the aim of preventing the recurrence of identical or similar accidents) is not the primary purpose of the investigation. For example, if the purpose of the investigation is to apportion blame or liability the investigation may proceed differently than if the purpose is to understand the immediate and underlying causes so that appropriate lessons can be learned.

There can also be conflict between HSE getting the necessary evidence for a prosecution and the company preparing its internal accident report. In the past, the recommendations from a company accident report have been used by HSE against the company in court and companies are now wary of what they include and do not give recommendations. This reduces the likely success of the learning lessons process.

Incident/accident analysis

Often, accident analysis and incident investigation techniques used within industry do not include adequate consideration of either root causes or human and organisational factors,

focussing instead on immediate causes. The opportunities for learning lessons are therefore limited as a result.

One of the key barriers to learning, especially in large companies is communication. Large companies often struggle to communicate to all parts of the same organisation on internal issues, let alone on issues arising externally.

Related to this is information overload; if people are bombarded with alerts and information then important messages get lost. Reports of accident investigations that contain too many recommendations have a similar effect. It would be more effective to focus instead on a few key recommendations; these can then be more easily addressed and tracked so that they can be closed out quickly.

Acting on the findings and evaluating interventions and modifications

Where behavioural change is needed, this is hard to achieve as it is inherently difficult and resource intensive; cultural and behavioural lessons tend to be harder to learn than, for example lessons that require a change in hardware.

Disseminating information

It is particularly difficult to get messages to small firms. For example in the construction sector it has proved very difficult to persuade small firms to take part in SHADs as a result of the loss of earnings while attending the event. In addition, small firms may not be members of trade associations which play an important role in sharing and dissemination of information. Often, if companies do not meet through trade associations they do not meet at all, and there is therefore no opportunity for learning and sharing.

Small firms will also often not learn, and can be difficult to educate as they tend to think that accidents will not happen to them, as most small companies will go through their life without ever having a major accident.

The recent reduction on the number of publications HSE is producing and other resource constraints have been cited as significant barriers to learning. Good communication with industry is vital to maintain HSE's profile and enable effective dissemination of information. Production of guidance and other publications is a key part of this. HSE is reviewing the best way to maintain the information flow with the increasing reliance on electronic media, but recognises that guidance and other publications will continue to play a key role.

5.2 THINGS THAT COULD BE IMPROVED WITHIN INDUSTRY

Incident/accident reporting systems

Levels of reporting of accidents and incidents, and the quality of the information that is reported need to be improved. Without accurate and comprehensive information about what has happened (including information on both immediate and underlying causes) it is not possible to interrogate the information and identify the lessons that should be learned.

Incident investigation and incident/accident analysis

Industry should be encouraged to carry out investigations following every incident with the purpose of learning lessons.

Generally within industry, improvements are needed to the incident investigation process, and to the analysis of accident data to ensure that there is adequate consideration of underlying as well as immediate causes and of human and organisational factors.

Acting on the findings and evaluating interventions and modifications

In most industry sectors, there could be better monitoring and follow up of recommendations following incident investigation and accident analysis, and improved evaluation of the longer term effects of associated interventions and modifications. For example, the offshore sector is a leader in sharing and disseminating information, however even in that sector there are problems implementing the findings and learning; things tend to get lost as they are cascaded down. More robust systems for tracking corrective actions and ensuring they are implemented are needed in most sectors of industry.

5.3 THINGS THAT COULD BE IMPROVED WITHIN HSE

Incident investigation

Training for inspectors on the use of appropriate accident investigation techniques that include appropriate consideration of both underlying and immediate causes as well as human and organisational factors could be improved. This should also help to address issues relating to consistency of approach throughout HSE.

Incident/accident analysis

Within HSE, collective analysis of data from individual incident investigations to identify wider issues could be improved. At present, there is no easy way of collectively analysing data from individual incident investigations; in part this is due to the fact that current information systems do not allow the information to be recorded in such a way that it can be analysed easily. The new COIN system may help in this respect.

As stated previously, much cross-sector learning and sharing of information within HSE takes place through informal networking with a heavy reliance on personal contacts and knowledge, experience and proactive behaviour of inspectors. While in many cases this informal sharing works well, it is insufficient on its own. The internal systems for sharing could therefore be improved. However, if any more formal system for sharing was to be implemented it is extremely important that the following factors are taken into account: any new system should retain the strengths of the current informal sharing, which largely relate to the fact that as it is based around personal contacts, the knowledge transfer is extremely effective; any new system should not be bureaucratic or resource intensive to use, and should not lead to information overload; and any new system should make good use of IT.

Acting on the findings and evaluating interventions and modifications

Monitoring of progress and follow up of recommendations from HSE investigations could be improved.

Disseminating information

In some areas (for example in the manufacturing, pipelines and construction sectors) it has been noted that delays in dissemination of information as a result of ongoing legal proceedings by HSE can prevent or delay the learning of lessons. Conversely in other sectors (for example

offshore and agriculture) it was noted that even when larger accidents are still under investigation and subject to legal proceedings, this does not stop the immediate lessons being learned and shared very quickly where this is necessary to prevent reoccurrences elsewhere. Guidance as to what information can be released and when in the case of ongoing legal action would be helpful. Often the quickest way is for the industry trade association to disseminate the information.

Dissemination of information by HSE to industry could be even more effective with additional time and resources. HSE needs to be able to disseminate information more quickly and be more transparent.

Extended use of exemplars, case studies and illustrations of good practice by HSE to convey lessons and disseminate information would be welcomed by industry, particularly by small firms. However, the cost of some HSE guidance and reports is an issue for smaller companies. The provision of free downloads from the website, a practice adopted by regulators in some other countries, would overcome this.

Better communication between HSE and LAs and HELA would be beneficial; a culture change and common understanding needs to be developed. Consistency of approach within LAs and between HSE and the LAs with respect to investigation of RIDDOR reported incidents could also be improved.

Corporate memory

Corporate memory and retention of information within HSE need to be improved to ensure that there is 'long term' learning of lessons, and that there is not unnecessary duplication of effort. This is a particular problem in some sectors (not the major hazards sectors where knowledge of the industry is a prerequisite for recruitment) where at present the majority of inspectors are relatively inexperienced, with limited knowledge of the sector they are working in. Previously, experienced inspectors used to identify problems and sector wide issues via company visits, now sometimes less experienced inspectors either do not see things, or do not know whether things are problems or not. This problem is being addressed through inspector training, but there needs to be an effective mechanism for capturing and retaining the knowledge and experience of experienced inspectors within HSE's corporate memory, in such a way that it is retrievable and usable, i.e. effective data management is key.

It is important to make better use of technology (e.g. intranet/internet technology) to share information in a cost-effective and efficient way both within HSE and with external stakeholders. Good IT systems are essential for effective and efficient communications and data and information management.

6   RECOMMENDATIONS FOR THE WAY FORWARD

This study has generated a considerable volume of information, out of which it would be possible to extract a large number of recommendations to improve the existing arrangements for learning lessons and address identified barriers to learning and areas for improvement within both HSE and industry. However, a large number of lessons would in themselves be a barrier to learning, and instead only one or two key recommendations relating to each element of an effective learning lessons process have been drawn out. The key recommendations presented in this section are essentially suggestions for remedying some of the identified weaknesses and gaps in existing arrangements.

Incident/accident reporting systems

Ways to create the right environment to encourage reporting of incidents and accidents throughout industry should be explored. Examples of good practice with respect to reporting have been seen in the aviation and offshore industries; it may therefore be worth exploring the feasibility of using similar methods in other sectors to improve levels of reporting.

Incident investigation

Industry should be encouraged to investigate all incidents with the purpose of learning lessons, and to use appropriate techniques for such investigations that ensure there is adequate consideration of underlying as well as immediate causes and of human and organisational factors.

The consistency of approach to incident investigation throughout HSE should be improved. Training for inspectors on the use of appropriate accident investigation techniques that include adequate consideration of root causes and human and organisational factors should also be improved. It is understood that similar recommendations to this have arisen from two other ongoing HSE projects (described in sections 2.3.1 and 2.3.2), and that actions to address them are being implemented. Any actions arising from this recommendation should therefore be carried out in conjunction with those from the other relevant projects.

Incident/accident analysis

Within HSE, the robustness of internal systems for cross-sector sharing of information (for example the findings from incident investigation) should be improved. There is an ongoing internal HSE project on knowledge management in sectors (described in section 2.3.3) that includes as part of its remit the need to work efficiently and share information within and across sector boundaries. This project has already resulted in the trialing of new methods for cross-sector sharing of information. Any actions arising from this recommendation should therefore be carried out in conjunction with the sector knowledge management project.

With regard to the sharing (and capturing) of the findings from incident investigation specifically, this could possibly be improved by the development of a common template outlining the standard information from an accident investigation that would be useful to others. This could then be completed within the sectors, and disseminated to others. The template would need to be carefully thought out to ensure it included all essential information (e.g. consideration of underlying causes), and avoided problems of information overload.

If any new systems are to be developed and implemented it is important that:

- The strengths of the existing, informal systems for sharing are retained; these largely relate to the fact that as the existing systems are based around personal contacts, the knowledge transfer is extremely effective;
- They are neither bureaucratic or resource intensive to use, and do not lead to information overload;
- Good use is made of IT.

Acting on the findings and evaluating interventions and modifications

Industry should be encouraged to implement better systems for acting on the findings from incident investigation and accident analysis including better monitoring of progress against recommendations and agreed corrective actions, as well as evaluating the success (or otherwise) of associated interventions and modifications.

Monitoring of progress and follow up of recommendations arising from HSE investigations could also be improved.

Disseminating information

It has been found that in some areas there have been delays in the dissemination of information as a result of ongoing legal proceedings by HSE, while in other areas ongoing legal action has not prevented details of immediate lessons from being shared very quickly. It has been suggested that a more detailed examination of the issues arising in relation to ongoing legal proceedings by HSE, and the possible impact this has on the dissemination of information on lessons learned (and in particular the timing of this) should therefore be carried out. HSL have been asked to carry out a brief scoping study to define the remit and scope of such a further study.

It would greatly assist industry in learning lessons if all HSE guidance, reports and information was available to the public, free, and readily accessible, for example if it could be downloaded free from the website.

Corporate memory

It is recommended that attempts to improve organisational learning and knowledge management within HSE be made to improve the organisation's corporate memory, and ensure that lessons that have been learned stay learned, and that information is captured in such a way that it is retrievable and accessible. It is important to make good use of IT to enable the sharing of information in a cost-effective and efficient way. Changes to the culture and behaviour within the organisation will be needed in conjunction with improved knowledge management systems in order to improve corporate memory. As stated previously, there are ongoing internal HSE projects (e.g. the project on knowledge management in sectors described in section 2.3.3) that will lead to improvements in knowledge management in HSE. Any actions arising from this recommendation should therefore be carried out in conjunction with other ongoing projects.

7 APPENDICES

7.1 APPENDIX A – QUESTION SET FOR INTERVIEWS WITH HSE STAFF

General questions

For the start

Can you give us an overview of the sector?
        Range of industries
        Breakdown of size of companies etc.
        Range/variety within the sector

Can you briefly outline your personal/individual role, and the role of HSE more widely within the sector?

For the end

What is the present 'economic climate' within the sector?

Is there anything else that is having a big impact on the Industry at present?

Have there been any recent or are there any planned/foreseeable changes within HSE that have/will impact on the sector?
        What and how?

Do you have any contacts within industry representative bodies who demonstrate good practice in learning lessons? Ideally have wide representation (esp. small firms and service sector)

HSE staff's knowledge of what happens in the sector

Do companies have a policy for learning lessons from incidents?

Is there a formal or informal process?

What is it?

        How do companies learn?
            From internal events
            From external events within the sector
            From other sectors
            National/international events

        How do companies disseminate/share the lessons learned?
            Internally
            Externally within the sector
            To other sectors
            Internationally

Are there differences in the policy/processes for ill health related incidents compared to safety related incidents? Explore.

Is the process 'in place' or is it an 'idealistic' process/system?
  Does it work?
  What does work, what doesn't?
  Are there differences with e.g. company size or other sub-sector differences?
  What could be improved/what else could be done?
  Why aren't these things happening/what barriers are there?

  What is the involvement of HSE?
  What is the involvement of other bodies (trade associations etc.)?

Does HSE try to influence/facilitate processes etc. within the sector?
  How/what mechanisms?

What HSE does/what happens within HSE

Is there a system/process for
  identifying relevant incidents/dangerous occurrences/near misses
  drawing out lessons learned
  capturing lessons learned

  a) from within the sector
  b) from other sectors within the UK (e.g. including information from central exercises)
  c) internationally in the same sector
  d) internationally in other sectors

Is there a system/process/procedure for providing sector specific information as an input to central intelligence processes or specific exercises? *(interested in information flows and pathways within HSE)*

What analysis (filtering) of information is carried out?

How is information shared with duty holders?
  Within the sector
  In other sectors
  Nationally/internationally

Is the system/process being implemented?

Does it work/what works/what doesn't?

Is the system/process effective? (also is it efficient?)

Can you provide any illustrative examples?

Do you have any ideas for what could be done differently/better, noting any potential barriers that would need to be overcome?

What do you see as the benefits of having learning lessons systems in place?

What would you like to see done?

7.2   APPENDIX B – QUESTION SET FOR INTERVIEWS WITH INDUSTRY REPRESENTATIVES

General questions

For the start

Can you give us an overview of the industry sector/members that you represent?
> Range of industries
> Breakdown of size of companies etc.
> Range/variety within the sector
> Administrative/membership arrangements
> Proportion of members they represent

Can you briefly outline your personal/individual role, and the role of your organisation more widely within the sector, in terms of function/remit?

For the end

What is the present 'economic climate' within the sector?

Is there anything else that is having a big impact on the Industry at present?

Can you think of any particularly good examples of good practice in learning lessons among your members/groups of members?

Knowledge of what happens in the sector

Do companies have a policy for learning lessons from incidents?

Is there a formal or informal process?

What is it?

> How do companies learn?
>> From internal events
>> From external events within the sector
>> From other sectors
>> National/international events

> How do companies disseminate/share the lessons learned?
>> Internally
>> Externally within the sector
>> To other sectors
>> Internationally

Are there differences in the policy/processes for ill health related incidents compared to safety related incidents? Explore.

Is the process 'in place' or is it an 'idealistic' process/system?
> Does it work?
> What does work, what doesn't?
> Are there differences with e.g. company size or other sub-sector differences?

What could be improved/what else could be done?
Why aren't these things happening/what barriers are there?

What is the involvement of your organisation?
What is the involvement of other bodies (e.g. HSE/ other organisations, trade associations etc.)?

Does your organisation try to influence/facilitate processes etc. within the sector?
How/what mechanisms?

What your organisation does/ What happens within your organisation

Do you have internal systems/processes for?
identifying relevant incidents/dangerous occurrences/near misses
drawing out lessons learned
capturing lessons learned

e) from within the sector
f) from other sectors within the UK (e.g. including information from central exercises)
g) internationally in the same sector
h) internationally in other sectors

What analysis (filtering) of information is carried out?

How is information shared with your members?
Is any information shared with non-members in the sector
Is there any cross-sector dissemination, or sharing with other organisations/bodies

Is the system/process being implemented?

Does it work/what works/what doesn't?

Is the system/process effective? (also is it efficient?)

Can you provide any illustrative examples?

Do you have any ideas for what could be done differently/better, noting any potential barriers that would need to be overcome?

What do you see as the benefits of having learning lessons systems in place?

What would you like to see done?
Prompt re: roles of HSE and other organisations/bodies

7.3   APPENDIX C – GLOBAL PROCESSES AND SYSTEMS

In this section, information on global or cross-sector processes and systems for learning lessons from incidents is presented. The detailed information provided is based on information provided during the sample of interviews with HSE staff and industry representatives. The information has been quoted largely as it was provided, and in some cases verbatim, to ensure that it accurately represents the discussions that were held.

7.3.1   Accident reporting systems

A number of important issues associated with accident reporting systems were raised in the interview with the Glasgow Accident Analysis Group (GAAG). The GAAG is a research team based in Glasgow University. Their aim is to improve the understanding of system failures and human error and they are particularly interested in accident analysis and incident reporting systems. They have carried out research into accident reporting in a varied range of applications including healthcare, military and aviation. The views of the GAAG on issues associated with reporting systems are presented below.

Issues associated with reporting systems raised by the GAAG

When designing a system you need to make sure that you don't spend all your time on the causal analysis side of things and no time on form design. It will be of no use if it doesn't meet simple requirements, e.g. being able to put in multiple times of things happening, not having enough choices for location of incident.

As different reporting systems often use completely different analysis techniques, you can't compare the results. Incidents can often be of the same nature with similar causes but you cannot compare because the classification analysis is so different.

Flowchart systems exist and with these, the more complicated you make the flowchart, the more accurate the outcome may be but the more subjective the result will be. Each user could come out with a different result purely because of one decision made differently. To counter this, some systems ensure you trace your path through the flow chart by writing a paragraph about your reasoning at each major decision point.

The time taken to fill out a reporting system proforma and carry out the analysis should be taken into account when designing a system. For a large industry there will be many incidents per year and if it takes an hour to do each analysis, it would mean employing many more members of staff.

A potential problem with incident reporting systems is that the people entering the data and carrying out the analysis can be too closely associated with the companies having the incidents.

Classification schemes mean that you have effectively frozen the system in the present day, so that a new piece of equipment causing a new incident won't be in the classification. The system can be added to but you cannot go back through past incidents and re-classify them all and will therefore not be able to compare data after a cut off date.

If you don't want a big national reporting system which could be expensive and unreliable, you could choose a small number of people across the country and spend money training these people up. You could then look at all of the incident reports recorded by those that have been trained and extrapolate. This system tends to cut out the more trivial incidents.

Another problem is that people base decisions on statistics when statistics can be unreliable. Under-reporting is a problem in most industries and you might be making decisions without having the full picture.

There are two basic types of reporting system, those which require the data to entered into a form and those where you write a descriptive report of the incident. One advantage of writing a brief report on exactly what happened is that you remove the need to classify the results. It also allows the use of search engines for free text retrieval, however, a limitation is that producing statistics is difficult. Some of the issues associated with forms and classification systems have already been discussed and it can be seen that both systems have their problems, perhaps the solution may be to take elements of both. It is important to be absolutely honest about what your systems will do.

Once you have found the lesson to be learned it may be an even bigger challenge to implement the change required. Implementation of the control may be difficult for various reasons, e.g. cost, practicability. Another established problem is that the information is disseminated on the lesson learned but it is ignored because it doesn't currently affect an individual. However, it may well do at a later date but by then the details have been discarded. Learning lessons and disseminating those lessons is most successful when incorporated into training. Feedback must also be aimed at the right level using the right language and format.

7.3.2   HSE Corporate Topic Groups (CTGs)

The information presented in this section is derived from interviews with representatives from some of the HSE corporate topic groups (CTGs). CTGs are corporate groups providing support to all operational directorates as well as the policy group. They develop the evidence base in their discipline to support HSE's operations, in addition to identifying and commissioning research. They interact with companies, deal with industry associations, OGDs and Standards making bodies. They also deal with enquiries from the general public.

Process material and systems safety CTG

The group integrates mechanical, chemical and chemical engineering specialists. It is responsible for pressure systems, fire and explosion, and equipment integrity. The range of industries covered by the group is pretty wide from the petrochemical and chemical to the flammable gas (LPG and petroleum). It also includes parts of the food sector (flammable dusts), power generation (gas turbines), transport of hazardous goods and the integrity of gas cylinders.

HSE has central processes for gathering statistics from RIDDOR, COIN and CIS databases. The statistics unit mainly provide corporate statistics and don't focus on particular sector needs. However, if the group has particular needs/ issues then they have got to gather the information yourself. HID has done some analysis on loss of integrity on pressure equipment but they had to go out and get the information which was very resource intensive.

Process safety CTG can find explosion data in RIDDOR, CIS, MARCODE and FOCUS but it's difficult to draw all of these together to get a complete picture. Ideally the group needs to set up its own database but that's difficult. The group has got one on pressure systems and fire and explosion (Firex). These are very useful but extremely resource intensive and the CTG would therefore want the statistics unit to do more for them in managing the databases and interpreting data. The group do regular analysis and look at trends, they have to report to the Advisory Committee for Dangerous Substances on the Firex database. The results of the analyses only go into industry once the root cause has been established and trade associations are used to disseminate the information.

There is no formal process for encouraging firms to share information. Producing guidance is one route for HSE to share information with duty holders but they need to make sure it's relevant to the issue. They have to do basic analysis on the issue and check that they've got enough information to issue guidance. If not, they may need to start commissioning research. The CTG find trade associations a useful route for getting general HSE messages across to industry. They also use them for promulgating guidance or influencing the association's own guidance. Companies find it easier to talk to and trust trade associations rather than HSE. However, before going straight to industry with an issue it is better to use forums such as trade associations to see if they're aware of similar things have happened.

Standards meetings help for international collaboration and at these people are generally happy to discuss what goes wrong.

Barriers to learning

Time and lack of interest is a barrier, there is a tendency for people to think things like; it doesn't concern me, we're already doing things well, it's not in my sector, we've been doing it for 50 years and there's never been a problem.

For a lesson to be implemented it must be relevant and it must have an impact so people will look at it in the first place.

The learning lessons process has the potential to be effective and can be, but learning lessons is not high on industry's agendas except for the health and safety officer. Commercial pressures can prevent systems being effective.

What could be improved?

HSE do quite a good job of getting information out to industry. The problem is the willingness of industry to use the information; generally, people are not willing to do things. If you had formal learning lessons processes such that information was regularly sent out to industry there could also be a problem of information overload. If you put something on the internet on learning lessons from incidents, the problem would be how many people would look regularly.

HSE should have a policy for communication and information sharing which will need to be a high level framework and strategy for getting advice out. They will need to get directorates to implement the policy.

It is also not easy to make sure that information is acted upon once it has been disseminated.

The way data is recorded could be improved. The conversion of raw data into something useful is difficult because RIDDOR doesn't contain the right information. Somebody has to take the raw data, interpret it and make it something useful before seeing if it's relevant. Free text searching gives you lots of information that has to be sifted and you need expertise to fine sift.

Electrical and Control Systems CTG

This CTG is involved in the development and dissemination of standards and guidelines for the design and application of safety-related electrical and electronic systems and equipment. It also provides topic advice across HSE interacting with most sectors though mainly working with FOD RSGs, HID, Offshore, and fairgrounds.

The day to day work of the topic group is involved with Standards and they get a lot of information from Standards meetings. However, when involved with an incident they help the company concerned and make recommendations to prevent reoccurrence. The CTG would then try and share the findings with the rest of the sector. The job of the CTG is to give technical guidance so whenever they see an issue they have to try and disseminate it back out as much as possible. Findings tend to be fed back at the highest level through Standards. The unit have also published 'Out of Control' [HSE, 2003] which aims to raise awareness of the technical causes of control system failure by publicising the details of actual incidents and showing how they could have been prevented.

There are no formal systems for analysis of incidents, mainly due to how the group is set up. Sectors could usefully do this by gathering incident experience throughout their sector. Some analysis of trends takes place, generally in relation to a publication. It is felt that HSE should encourage industry to do more analysis of accidents, need to get it into good practice and have clear statements of what the good practice is.

Barriers to learning

Reporting is one of the main barriers, it has to happen in the first place. The blame aspect is a barrier to reporting, as is the fear of action from HSE. Confidential reporting does work but you have to have a system to support it. The best model is in the aviation industry, here if you report an incident you are protected and won't face prosecution for your involvement.

In general, companies are interested in learning lessons if they can get the right information. But they don't know who is making the information available and who is interpreting it to make it relevant to their particular company.

What could be improved?

Disseminating experience back to industry is an area HSE could improve. The information needs to be focussed on specific areas. It might be useful to have more information on causes of incidents rather than just the raw statistics on accidents. HSE doesn't formally share findings except for big incidents but things get out to industry through hearsay. There is room for improvement from HSE in disseminating findings from investigations.

The main feedback route for learning is through good practice; incidents influence good practice. In HSE there is a danger that by going down the risk-based approach, good practice can be by-passed.

To change the culture in a company you have to do it from the top, you need to have a culture where safety comes first which is generally true in the offshore industry. You need to get at people who can influence the culture of the organisation. This may be easier in larger companies as smaller firms have to place a higher emphasis on profit.

HSE could potentially get involved with training in incident and accident reporting.

7.3.3   HSE Health and Safety Units

The information presented in this section is derived from interviews with representatives from the HSE Safety and Health Units. The Units have a corporate function to develop operational policy, and take the operational lead, on cross sector health and safety issues. They support HSE's priority programmes. Part of their function is also to collate information and provide guidance and advice on health and safety topics.

Safety Unit

The Safety Unit deals with topics that include workplace transport, falls from height, electricity, PPE, fire and explosion, slips, trips, machinery, lifting equipment and product supply. The unit is largely inward facing, in terms of HSE, although it does also meet with external people on particular topics. The unit covers all industries, HSE-wide although it mostly works with FOD. It is beginning to develop similar links with LAU.

The Safety Unit analyses accident statistics through RIDDOR and FOCUS and then directs the findings back down to the rest of HSE as issues for inspectors to look for. The unit will usually be copied into HSE investigation reports if those carrying out the investigation think the findings will be of interest.

There are no formal mechanisms for learning from other sectors but for topics that cut across many sectors, the Safety Unit will take the lead in informing the relevant parts of HSE. The main way in which the unit learns internationally is through Standards Fora.

Information is shared with duty holders through publicity and communication tools, e.g. they hold roadshows on particular topics and also seminars/ conferences. The website also should be key way but it's not considered to be particularly good at present.

Things that could be improved in HSE

The process of learning lessons can be improved but it needs to be fit for purpose, the answer is not greater bureaucracy. They think the system is reasonably effective as far as learning lessons from incidents. It's a function of line management to make sure that the right facts from a given incident get to the right people.

HSE are less good at good practice, i.e. when there isn't a problem but someone has done something that is a good idea, we're poor at capturing what is good practice. It's down to culture and resource; inspectors are very analytical and tend to look for faults. HSE needs a system of education; they're trying to get good practice into the priority programmes topics.

Barriers to learning

A company's image and the commercial side can be a barrier; they don't want people to know that they've been having accidents.

If you do send out safety alerts you may have to deal with the queries that these generate and this can become a burden.

Some trade associations are very good while others are not; the poorer ones tend to be only interested in minimising the cost to themselves.

Good example of a learning lessons system

A good example will be a firm that has a documented reporting system which includes near misses. Incidents will be investigated shortly after an event by a competent person and will have a reporting mechanism which includes learning lessons or actions to prevent re-occurrence (although quite often this will only be an identical failure).

Larger firms who have enough data for analysis will have system for doing that. Problem occurs with smaller firms who don't have enough incidents to analyse, they will then rely more on HSE.

Internal dissemination may be through e-mail/ paper based system between management perhaps supplemented by toolbox talks. External dissemination will be mainly through trade associations/ suppliers. If a company is not in a trade association this could be through health and safety groups or unions safety reps.

Health Unit

The Health Unit looks at any generic health risks and liaises with those who might set the standards for handling that health risk in their sector. The Unit also provides staff/inspector training in health topics and offers a support function and guidelines to inspectors.

The Health Unit looks at accident trends and the notices that have been served by inspectors. It also looks at the statistics, and tries to identify issues, quite a lot of effort put into learning lessons. They are effectively there to transfer valid lessons across sectors.

Some inspectors will feed information, found following an investigation, back up to the Health Unit, who will then evaluate it and decide whether it is an issue with broader implications. However, this is not a formalised process and is left to the discretion of the individual inspector, feedback is encouraged but nobody is actually forcing the issue.

The Health Unit will disseminate information across HSE and if necessary will write instructions. There have been whole programmes of information following the instigation of new processes in industry but this tends to not happen for behavioural issues/problems.

Differences between health and safety issues

The things that we call health issues are those that aren't immediate. There is a latency period between harm and when damage shows or it's cumulative, e.g. dose response, stress. If it's a long latency period and the workforce don't stay in the industry, there are issues as to whether you ever identify the cause and learn the lesson.

Quite often the problem isn't that they don't learn and share the lessons, it's that they don't learn the cause and effect because in a long term case it is difficult to establish a cause. If there is concrete proof that X causes Y, it is easier to learn lessons.

When inspecting for stress, the tendency is for people to immediately think it might be domestic and therefore ignore the work related element. There has been a decline in the attribution of back issues to domestic causes so there is progress in the right direction but it inevitably takes time.

Barriers to learning

People wanting to avoid blame and there is the whole issue of reputation management. Companies are not very good at admitting to others, unless maybe to a trade association, that there is a problem as this could lead to a loss of confidence. Trade associations demand statistics from their members but as for whether companies disclose specific incidents and lessons learnt depends on the nature of the incident or how guilty they feel. If it's a technical issue then they are more likely to share but if it's a safety management/human error issue they may be less likely.

Denial, people don't want to believe that it could happen to them.

Learning from lessons is seen as a bonus and people don't fight too much to make sure it happens.

The way HSE is set up can be a barrier, it tends to be split into specialists and generalists and information doesn't always pass from one to the other. HSE is also constantly reorganising which means that issues get 'lost' leading to a loss of organisational memory. This can lead to cases where it is not clear what has happened to work that was started in the past and seemingly disappeared. The topic/issue comes up again and the process begins again which is a waste of time if work had already started or it is not dealt with because people think it has been done previously.

What could be improved?

The lessons learnt following a public enquiry are written down but not sure how good HSE are at implementing them, recommendations are not always carried out. There's also a concern about external enquiries in that they shout loudest but do least, there's an immediate impact but this then dissipates.

There needs to be better communication between different parts of HSE and more informal ways of sharing best/good practice of learning lessons.

HSE also needs to raise the profile of Human Factors and place more emphasis on them in basic training and in continued professional development. They should review and reflect on the human factor aspect of accident investigation. Behavioural issues are more of a grey area than technical ones, which are easier to formalise.

If you reduce the lesson to be learnt to something too specific then people don't think it applies to them. If you make it too general, they don't figure out what you're getting at. Therefore HSE need to learn how to best present the lesson to maximise its impact.

In a sector context, you're trying to get the whole sector to investigate accidents properly and learn lessons. If the trade association has been convinced, then industry are more likely to trust them. If it is a case of legal interpretation they tend to believe HSE rather than the trade association. The best solution is to get the information from both HSE and industry.

There has to be a balance in HSE between the time spent on learning lessons and delivering results. Resources are an issue of top priority.

7.3.4   Union of Shop Distributive and Allied Workers (USDAW)

The information presented in this section is derived from an interview with a representative from the Union of Shop, Distributive and Allied Workers (USDAW).

USDAW mainly represents members in retail, but also has members in distribution, food manufacturing, mail order, and insurance industries. There is a declining membership in the fine chemicals and pharmaceuticals industries and there is no public sector involvement. One of the roles of the national health and safety officer is to provide immediate advice and guidance (~1500 enquiries/yr) to members, in addition to producing guidance and literature for safety reps.

It is the responsibility of the union to make sure that the safety representative structure is as strong as possible and that store management know what the roles of reps should be. USDAW provide training for reps in addition to that given by the TUC. This looks at their function in the investigation of accidents and a handbook is provided for guidance. TU reps are often only involved in accident investigation if the reps are strong and know there role, management guidance in companies is usually not clear on who should be involved. The union also produces a standard accident investigation form and hazard reporting form. They are about to produce a risk mapping tool for slips trips and falls to enable firms to see where most accidents are occurring.

The union gets a good feel of what guidance is needed from the types of enquiries it gets or the discussions it has with its safety reps. In addition, they watch what is happening nationally and see what HSE's priorities are before issuing in-house guidance on specific topics. The union also issues a journal to shop stewards and reps quarterly which contains 2-3 pages on health and safety. They have also been involved in the development of HSE guidance

An e-mail alert system is being initiated by USDAW. On a sectoral basis thinks that the SADIE alert system used in the offshore industry is very useful and that similar system would be very good for other sectors.

Barriers to learning

Biggest barrier on multi-site organisations is that the system requires the line managers to make crucial decisions when they've not always been properly trained in accident investigation. It's seen as a chore and they're often frightened of litigation.

Directors of companies are very worried about corporate killing legislation.

What could be improved?

Most larger companies have formal policies for learning lessons but many are not implementing them consistently.

People are worried about reporting incidents as they think it will lead to an inspector calling and possibly a loss of confidence in their business.

The union is convinced of the importance of employers' liability. Insurance companies have a role in persuading people to divulge information on incidents. Premiums can be based on risk performance.

Many trade association don't see themselves as having a learning lessons role and are often too busy trying to fend off government red tape.

7.4 APPENDIX D – SECTOR SPECIFIC PROCESSES AND SYSTEMS

In this section, information on the existing systems and arrangements for identifying and promulgating lessons learned from interviews in particular sectors of industry is presented. This information has been derived from information gained from the sample of interviews carried out with HSE sector staff and, in some sectors, from interviews with representative industry bodies, where these related to a particular sector. The information presented in this section is therefore based on the views, experience and opinions of the interview participants and as a result is partially subjective, rather than being purely objective, factual data. The information has been quoted largely as it was provided, and in some cases verbatim, to ensure that it accurately represents the discussions that were held.

7.4.1 Agriculture sector

Overview

The agriculture sector is responsible for forestry and arboriculture as well as farming. In farming, employers are almost exclusively SMEs, lots of which are small, or very small. Farmcare is a cooperative group (the biggest group) made up of 100 separate farms (with 3-10 employees per farm); the majority are a lot smaller. The agriculture industry is also very geographical: arable in the East, with relatively larger employers; livestock in the West, with smaller employers. The arboriculture industry is made up of around 6 businesses with 2-300 employees, and the rest are very small businesses (1-2 people). 50% of the forestry industry is operated by the Forestry Commission (FC), i.e. there is public sector input. The remainder of the industry need licences from the FC so they have a very big influence. 90% of harvesting is carried out by 10-11 major companies who sub-contract to smaller businesses.

Around 500,000 people are employed in total in farming (many different SICs) and there are around 250,000 premises/enterprises. The annual turnover is around £6.5 billion, with £2.8 billion from public funding. Much employment is also seasonal/casual. In forestry/arboriculture, there are a total of around 50,000 employees. This includes a lot of tree work in urban environments (LA enforced). It is difficult to get an exact figure for employee numbers as there are discrepancies between different databases (e.g. HSE and DEFRA) in terms of total employment figures and % employed/self-employed.

Learning lessons processes and systems within the industry

In agriculture, there are no formal learning lessons processes or systems within individual farms. Most farms are not companies and have nothing like a business infrastructure. In addition, 50% are 1-2 man operations. They are subsisting, and on pure profitability grounds probably shouldn't be in business. Even big farms only have about 25 employees (i.e. are still small businesses).

As much employment is seasonal/casual, levels of reporting under RIDDOR are worse than average.

The sector commented that learning and sharing is not the significant issue as under-reporting is so high; realistically they can only make use of fatals data and investigated accidents data. The real issue for them is how to get more information on the missing 95% and 75% of incidents (self-employed and employed sectors respectively); they know how to do the learning if they had the data to learn from.

The FC analyse accidents (to public and employees); they collect and collate data on both safety and health.

Learning from internal events

Most farms have 1-3 employees who are usually family members. If there is a major accident, usually only the farmer's wife and family are left, therefore there is no-one to investigate and learn the lessons. HSE investigate all fatalities, and it is possible for the family to join with HSE and use the incident as an example to stop others suffering the same fate, and this sometimes happens.

The situation is similar in forestry/arboriculture. Often incidents occur to self-employed individuals and there is no-one else to investigate and learn the lessons.

Learning from external events

80% of farmers get their information from Farmers Weekly. All the information in farmers weekly is focused on incidents and accidents.

Health versus safety

There are sector differences between health and safety. HSE is currently driving for more work on health, but there are problems getting good data. Two studies are due to be completed on 1) work related stress and 2) relative baselines on health outcomes of concern. They intend to explore whether revitalising is working or not.

Role of trade associations and other bodies

There is a very proactive association that represents dealers, BAGMA (British Agriculture and Garden Machinery Association). They pick up intelligence/information from networks and HSE and act on it; they have close contact with HSE. They set up a scheme for training dealers to carry out handover when machinery is supplied and identify further training needs, and carry out examination/testing of e.g. fork lift truck machine handlers. Another association that represents manufacturers and suppliers (the association for the amenity, environmental and agriculture industries) is more conservative but also has genuine concerns and is keen to see proper training. They talk to HSE, but don't consult HSE.

Other 'stakeholders' are NFU (National Farmer's Union) and TGWU (Transport and General Worker's Union). However, they have limited resources for health and safety and spend very little time and effort examining lessons from fatal incidents. They look to HSE to do this. They have however both looked at the issue of children on farms. There was an NFU 2002 conference on child safety that reported 23 or 24 actions. However, HSE followed up with them 14 months later and they had made no progress against any of the recommendations. TGWU use data to their own ends, e.g. use the emotive power of individual incidents rather than carrying out proper data analysis. HSE currently have someone on secondment to TGWU; his role is to assist the TUC professional at Cardiff to look at fatal accident data on children; otherwise lack of resources would stop them doing it.

The TGWU 'Landworker' in-house magazine has a health and safety column. This is a mechanism for sharing information/lessons learned to a wider membership, but only 10-15% of those employed are TGWU members. There is antipathy towards the TU in the rest of the employed part of the sector.

The insurance industry tries to learn lessons for under-writing purposes. NFU Mutual insure 70% of the farming industry. There is increasing use of information to try and improve things. In forestry/arboriculture, AXA is the main insurer. It is a high risk industry, so most insurers are not interested. There are 4 times as many claims as premiums, so the industry stopped under-writing new business. The message to industry about learning lessons didn't get through. Instead the industry wanted more regulation etc. and thought the problem was of fraudulent claims not that they could improve things by having safer practices. Banks also have an interest. The Royal Bank of Scotland has a consultancy arm and others have got into insurance but they have not looked at accident data. They are not interested in the ethical side. It is a very competitive financial sector and they don't see health and safety as an issue.

Forest Enterprise (the commercial part of FC is key in terms of distributing information). Forestry/arboriculture is a very close knit industry, therefore it is easy to get messages across.

Arrangements within HSE

The sector are interested in injury trends; they are interested in the impact of initiatives etc. including revitalising and media hype. They have developed an 'in-year prediction' tool that they use quarterly to overcome the problem with employment figures as there is a lag (sometimes up to 18 months) on population data.

In consultation with COSAS, the sector produces a fatal accident report, and pesticide incident reports. Other types of injury rates are hard to determine due to very high levels of under-reporting (comparing data from RIDDOR and the labour force survey indicates that the level of reporting for the self employed sector is about 5% for major and over 3 day injuries, compared with 25% reporting for the employed sector).

The sector has recently undergone a fundamental strategy review that included exploring whether there were any better ways of tackling the record of fatalities. The strategy is focused on hard data, i.e. fatalities. Agriculture has the worst fatal injury rate of all sectors and is a priority program. In developing the strategy, the sector looked at research evidence (much commissioned by HSE); the impact of publicity; evaluation; study of incidents in the agriculture sector carried out by BOMEL consultancy; and took a fresh look at the fatal accident and incident rates.

HSE central statistics, when presented as a fatal injury rate for the sector as a whole looks like a lack of progress, but if this is broken down to look at employed and self employed it looks like there has been a big improvement in the employed sector (a halving of the fatal injury rate over a 16 year period), where the majority of the effort has been spent, with a different trend for the self-employed sector. The sector has devised a strategy for dealing with this (based on expert judgement/intuition and influenced by information from BOMEL data analysis). They have identified key areas to be addressed to impact on the rate of fatalities, and now have a new 9 point strategy for the agriculture program that was approved by the project planning board in December 2002.

The Agriculture sector used a detailed examination of fatal incidents to influence the broad strategy and this led to an understanding of the need to apply greater resource to the self employed than the employed sector in future. They need to identify the most cost effective way to do this. The sector always uses analysis of fatal/major injury rates/data to direct resource in the most efficient/cost-effective way. They are also working with industry and using their data analysis. Industry also use fatal incident data and they are working with the industry to make decisions re: the best use of available resources.

A problem with the accident data is that there is lots recorded under forestry that isn't really forestry; the ratio is 3.5 to 1 accidents in arboriculture compared to forestry. The forestry industry is now ok and can be self managed. The contracting side of arboriculture is a different story. There have been some key incidents: an accident on the A7 where logs fell off a lorry leading to 3 fatalities and 2 persons suffering major injuries. It was a road traffic accident, but the issue of unsafe loading was pursued. Joint research with industry was carried out into whether the standards were adequate and followed. It concluded the standards were inadequate (and weren't followed anyway). The research report was discussed with the hauliers, led by the company with the problem, and the securing method was eliminated overnight. Industry learned from the incident, but it needed HSE to push for the research to be carried out. The majority of HSE research commissioned in this area (~ 0.5 m per year) is based on incidents or shortcomings in the data. Research is commissioned through call off contracts or competitive tender through the blocks.

The work of the sector is intelligence driven, they don't guess. The information feeds in at all levels, strategy, research (iterative), stakeholder dialogues, inspector actions and communications strategy. They are also asking inspectors to improve intelligence from the field. They also feel it would be a mistake to have a philosophy based purely on retrospective analysis of data; need to consider a more rounded approach, e.g. behaviour and attitudes.

Lots of ISO/CEN work (where HSE is the only regulatory body present) is dominated by manufacturers. They use accident data a lot in part to inform the development of standards. Involvement in these bodies allows a comparison between information available in other countries. HSE stands up well compared with other countries in terms of data availability.

In the woodworking industry, the focus is on process, e.g. breakdown of types of accidents. E.g. in wood manufacture (which employs 220,000) 30% of accidents are caused by machinery accidents; just less than 30% are musculo-skeletal disease (MSD)/manual handling. The sector instead has recently taken a fresh look at the previous 5 years accident data. They looked at who reported and got a different perspective on where the effort should be put. They found bed manufacturing was a problem (there were commercial as well as health and safety problems in this area) and that the problems spread to premises and shops and the transport sector. They devised a multi-site scheme to target around 6 companies who they had previously thought were good, but the different look at the figures showed they weren't. Inspector effort was spent looking at groups of accidents, carrying out in-depth investigations in the same area. This led to a better understanding of the root of the problems and was a more efficient way to inspect, and enabled them to direct resources to maximum effect. The six sub-sectors in woodworking are quite discrete; operational staff were incentivised by the rationale and impact.

They plan to use the same approach in the food sector to re-energise things from re-analysis of statistics. This will result in a focused approach for field inspectors to target key topics (e.g. manual handling and falls) by getting the big players to change. The anticipated outcome of the project – changing culture and behaviours are the most difficult thing.

An example of where this has been achieved is in the forestry industry. About 6 years ago, fatals were about 10%; forestry workers were the highest risk occupational group, the fatal incident rate was roughly double that for farmers. The sector recognised the need to focus on the underlying causes (attitude, procedures, management, etc.) rather than detailed individual accidents. A management framework was established, involving all in the process and broadening responsibilities so that each in the supply chain did the appropriate part. There was a HSE survey on value for money of the initiative a few years ago, with very good results. In the 18 months following the initiative there were no fatalities in forestry; this was a period when there was lots of work (dealing with wind blow etc.); previously there had been 6-7 fatalities per

year. The same workers also worked in France and there were 27 fatalities; the risk/dangerous work was therefore being very well managed in the UK. Contractors/organisers want the same standards everywhere.

CEN standards: take HSE intelligence and try to lead the world and use data etc. from other countries. In many EU countries, this is insurance company led rather than by the labour force. The UK is regarded as providing a lead for others to follow.

Stakeholders in the farming industry are generally very fragmentary so it is very hard for them to do anything and they don't have either resource or inclination; HSE therefore needs to be the driver.

The sector has a strategy for dissemination of information/communication with stakeholders, (a communications plan), and this is linked to their resource plan via their over-arching 9 point strategy.

Sharing with duty holders is via industry advisory committees and subcommittees and through publicity activities, and other items in the communications strategy. The sector provides the chair for the Agriculture Industry Advisory Committee (AIAC) and a number of subcommittees, e.g. ASAG (Agriculture Safety Advisory Group), HIAG (Health in Agriculture Group) and AFAG (Arboriculture and Forestry Advisory Group). These are forums for discussion of accidents and for dissemination of information. For example, the sector fatal accident reports and pesticide incident reports are always on the ASAG agenda. They encourage industry to look at specific individual cases and reflect on them and jointly come up with ideas for actions needed etc. HSE staff also reflect on individual accidents and carry out small, detailed analyses, e.g. the number of falls from heights etc. They identify issues and put to the committees suggested courses of action. In terms of health, they review ill-health data and gain agreement from the committees on the way forward, but as discussed earlier there are some problems with the data on ill-health.

The sector also has a publicity working group; they publish information on the website; carry out Safety Awareness Days (SADs); and attend agricultural shows. Farmers Weekly and supplements are also very good for dissemination of information (HSE is closely involved in publication of this). The sector thinks evaluation is key; it is important to check that the methods in use are successful. There is an ongoing research contract to develop a practical evaluation tool that they hope to use next year. An additional promulgation route is use of email/internet technology. There is an ongoing Treasury funded 'invest to save' project for farmers to complete pc based risk assessments; there is an e-risk assessment format with practical benchmarks; the trial of this was very successful. Also, the sector, along with other organisations, are developing vocational training modules for workers, supervisors, and managers on health and safety management (risk assessment and learning materials). The sector overall strategy gives pointers as to how information is promulgated.

The sector are still trying to identify the best communication routes. They have prepared an initial report on identifying what influences farmers' attitudes (considering SADs, publications, e.g. farmers weekly); all forms of communication/information sources have been identified and the dominant influences pulled out. They are moving on to consider specific modes to convey messages, and identifying the most effective.

Internally within the sector there are various dissemination routes, for example to operational staff, including sector information minutes (SIMs). These routes are embodied in the overall strategy and the process is well coordinated. The sector also attend the sector forum/heads of sector meetings, but most cross-sector learning/sharing of information is ad hoc, relying on

personal contacts. The sector has close contacts with other sectors on a personal basis and individuals know areas of commonality. Sharing of information and communication is assisted by the fact that people from different sectors work in the same office. The informal cross-sector sharing seems to work well. Inspectors (from different sectors) talk to each other; this is an effective way of sharing information. Where it is applicable, the sectors also combine research effort (e.g. evaluation of SADs for agriculture and construction), and they use HSE's in-house magazine to promote sector activities (construction introduced SHADs because SADs had worked so well in Agriculture).

Standards work is an opportunity for dissemination/sharing within the EU. Individuals also look at websites (US, New Zealand, Australia) to compare injury rates, e.g. quad accidents, and to look for information on training and standards elsewhere. This is a systematic part of the Inspectors' work; they all routinely look elsewhere. The annual labour conference is also a useful forum for exchange of information; this has a different focus each year; in 2003 it was focused on the self-employed.

In Forestry/Arboriculture sector they find looking what happens in the US very useful, e.g. there was an OSHA warning on a clipper machine 2 months before an incident. Following this they were contacted by Australians; they therefore have an international network and exchange e-mails etc.

The use of technology is very important, e.g. access to the internet is essential to keep on top of developments; people can see the benefit of this. There does need to be a mechanism for effective horizon scanning to avoid information overload and to find things; you need to search information out.

Barriers to learning

Lack of ownership of the problem is a potential barrier to learning. You can't just dictate to people and expect good results. If the workforce doesn't feel ownership then things aren't done with vigour etc.

Any system should respect the experience, local knowledge and special characteristics of different regions/sectors. There could be an overarching strategy and projects within it determined by individuals. A pragmatic approach is needed; you shouldn't tell people to do things differently if they are already doing them well.

Any systems for learning lessons should not be bureaucratic, or they would not be fit for purpose and would represent barriers.

Agriculture generally has a risk taking culture (behavioural research suggests farmers are unwise risk takers; livestock is 'predictably unpredictable' and high levels of risk are the norm), and there is currently economic hardship, although the view of the sector is that there is possibly no change in risk taking behaviour even when there is less economic pressure. Work is needed to identify the best means to address this.

What could be improved?

Meetings are often not the best way to share information; they are not cost-effective or efficient. It is important to use technology, e.g. make more use of the web (intranet/internet); this would be much more effective. There is also web-based community software; for this to work it is important that all sectors keep the website up to date; the agriculture sector page was first.

Cross-sector sharing is mainly ad hoc. While this appears to be working well at present, it is not robust, relying on knowledge, personal contacts and proactive behaviour by inspectors, and there is no guarantee of the comprehensibility of the sharing. Any suggestions to make cross sector sharing more systematic would need to add value to what is already there; this would not be achieved by anything too mechanistic. There is a HSE sector knowledge working group to look at how the organisation can more effectively share information within and without sectors, efficiently and without being overloaded.

Within the sector, people are currently motivated and enthusiastic. If any new systems are introduced, it is essential to retain the current good atmosphere and working arrangements.

HSE's corporate memory could be improved. This is very important to avoid going over the same ground and to ensure that anything we are currently doing well is preserved.

7.4.2 Aviation sector

Overview

The UK aviation industry (civil aviation) is regulated by the Civil Aviation Authority (CAA); UK is defined as UK airspace plus territories. Accidents and serious incidents are reported to and investigated by the Air Accidents Investigation Branch (AAIB), which is statutorily independent from the regulator, and from all other bodies where there could be conflict. The AAIB reports directly to the secretary of state for Transport.

The AAIB has around 50 staff. The investigators (35) are all pilots (from the airline industry, ex-Captains with a test flying background) and engineers, so they have a scientific approach to investigation. They have contractual arrangements with airlines with respect to maintaining licences for pilots; they fly as crew on scheduled airlines. The engineers are all chartered and also fly (e.g. private pilots). They also have a support team (office management) and an information unit that is aligned to investigations.

The AAIB has links to safety databases (6 large – US, UK, France, Germany, Canada and Australia) and to an international database. They also have links with ICAO (International civil aviation organisation), a UN body. They therefore have good access to data, but it is not always in enough detail. They also have access to published information.

Learning lessons processes and systems within the industry

In the UK Air industry there are well established policies and systems for learning lessons. In terms of reporting systems, there is a pyramid: at the top, accidents and serious injuries are reported to AAIB; in the middle, since 1976 there is a mandatory reporting system for all safety related incidents, which are reported to the CAA; at the bottom, there are company reporting systems for any lower level incidents, for example, the companies monitor (via flight data recorders) every flight within certain parameters, and note all warnings/unusual occurrences and use of redundancies. All companies do this, but they are not all as good as each other. For example, British Airways (BA) have been doing this for ages, and their system has been exported to the rest of the world.

In addition there is an industry confidential reporting system (CHIRP) that is seen as an essential safety net to pick up incidents not reported elsewhere. CHIRP has been running for about 20 years and is an industry wide approach, independent of the regulator and others. There are 7 trustees with individual positions across the industry and an advisory group. The trustees advise on how to respond to incidents; they have broad representation. They also advise on

appropriate dissemination of lessons. CHIRP is a confidential not anonymous reporting system. Individuals report incidents, and people then talk to them, question, seek fuller information, and validate, and then dis-identify the report from the individual, and anonymise the data entered onto the database. The individual making the report then comments on whether they think the anonymised entry is accurate etc. They are very proactive in terms of using the information from CHIRP; the director takes forward action and is regularly involved, and the system is trusted. Reports are published quarterly, which in a sense acts as a reminder to people of its existence.

For the mandatory reporting system, to encourage reporting, there is a 'disclaimer' such that companies will not be prosecuted for any accidents that are reported.

Learning from internal events

The air companies carry out their own analyses. BA have developed a system called BASIS that has become an industry standard and is used widely throughout. They analyse each flight, and look for trends, and identify actions needed. International data is obtained from other databases. The analysis group is administered by the CAA; they have an annual review, and the regulator decides where to spend the money.

There is also an ICAO safety audit process. There are 18 annexes to the Chicago convention. One of these was the agreement to carry out voluntary audits; these became mandatory in the late 90's and led to the development of action plans.

Learning from external events

The CAA carry out trend analysis of accidents/incidents and disseminate the information within the industry. The CHIRP system also provides feedback to the industry.

In terms of acting on lessons learned, bodies to whom a safety recommendation has been addressed provide a formal response, possibly in the form of an action plan, these actions are then tracked via progress reports. These can be issued at any point throughout investigations or following analysis of groups of accidents. Since 1990 these have all been in the public domain. If AAIB feel actions are not being taken, or not quickly enough, they can apply pressure, firstly by the Chief Inspector addressing concern to the regulator or company and as a last option by the Chief Inspector writing to the Secretary of State.

There is some international dissemination in the form of things that need to be done, e.g. manufacturer's service bulletins. If the regulator decides certain modifications etc. are safety critical, then they will issue a Directive.

Learning from other sectors

They don't look proactively for lessons from other sectors, nor do they routinely disseminate information to other sectors.

Health versus safety

Most companies have reasonable approaches to addressing health issues; most airlines have occupational health and safety officers.

Role of trade associations and other bodies

The 'state of occurrence' is responsible for investigation of incidents; they have to investigate, but can decide on the appropriate depth. Others can also be represented in the investigations, e.g. the state of manufacture has a right to be represented, the state of registry/operator can be, as can states with large numbers of passengers involved. The AAIB use this right and get involved in investigations that are led by other countries.

The investigation team (for a UK led investigation) is: AAIB, CAA/regulator, pathologists, plus others as necessary, e.g. air traffic control etc. depending on the accident. AAIB always have the lead, and liaise with police/others, e.g. manufacturers, who are usually advisers to the investigation team. The decision as to what AAIB should investigate is based on an international definition, but they do have some discretion to also investigate 'lower level' incidents, e.g. do sometimes investigate air proxes (equivalent to near miss events). There is also a definition as to what should be left to the regulator to investigate. Good communication between AAIB and the regulator is essential; this is formalised and there is regular contact.

The sole purpose of the investigation of an accident or serious incident by the AAIB is the prevention of accidents and incidents; it is not the purpose of the activity to apportion blame or liability.

Barriers to learning

Since September 2003, the aviation industry has also had an EU regulator EASA. They are not working in the same way as the CAA, they are not as responsive. There are some areas that the CAA can't regulate now, as they go instead to EASA and this is causing some problems in terms of response time. The regulator has to respond to safety recommendations.

What could be improved?

Better follow up of recommendations, including evaluation of the longer term effects of safety recommendations, i.e. has it fixed the problem. This could be done by looking at the number of precursor incidents and examining whether there had been a change. This is done to some extent in terms of annual analysis, but not in a systematic way; the BA BASIS system also attempts to do this. A barrier to this could be the sheer number of precursor incidents; it may be impossible to tell whether implementation of a recommendation has had the right effect.

7.4.3   Commercial and consumer services sector

Overview

The Commercial and Consumer Services, Transportation and Utilities (CACTUS) sector covers a wide range of industries, e.g. road haulage, cleaning, hospitality and security. There are about 13.5 million people are employed within the industries covered by the sector.

The focus of the discussion is on the entertainment and leisure part of the sector which includes fairgrounds, broadcasting, outdoor activities, swimming pools etc. – essentially public safety.

Learning from internal events

The internal learning processes vary widely from company to company and across industries. Companies often don't have formalised policies for anything and only do it where necessary. Large companies will have more formal processes in place but smaller companies can go for years without having an accident so they don't set a policy for something that they don't see as a problem.

The fairground industry covers a wide range of different sized companies and the larger companies will tend to have formal processes for learning lessons, e.g. the Tussauds group would have some sort of formal policy, but a self employed fairground operator is very unlikely to. Similarly, the big companies in the broadcasting industry do have policies and reasonably good methodologies for dealing with incidents. Some of the very large companies also do some form of accident analysis. One accident is big news for them and as they generally have very few accidents, it makes it easier for the investigation to be in depth. The broadcasting industry is quite good at sharing accident cause and corrective actions.

Smaller companies have a less formal approach. If the learning following an incident requires a hardware fix then they'll do that but they are generally not comfortable with softer issues and accident analysis.

Recently, one of the larger companies appointed a very competent national safety manager whose responsibility was to analyse statistics and trends, to carry out risk assessments and to draw up standards with HSE.

Learning from external events

A number of industries do have semi formal mechanisms for learning from external events, they hold informal meetings between groups of health and safety managers within the industry. The sector are being pressed to further facilitate this forum. One of the sectors roles is to run formal forums where issues can be aired, information shared and even ultimately disseminated in the form of HSE guidance. If good practice by one company sets a benchmark across the industry then the rest of the industry are generally happy with that and it can lead to the production of guidance.

There is limited awareness of other sectors and the industries seem to be quite tribal and think that issues are industry specific. Generic issues like slips and trips they will learn about from HSE, but specific messages from other industries are very unusual. If a company has a full time safety team then they might spend a bit of time and attention finding out about issues that might be relevant from other industries.

The broadcasting industry has companies that work internationally and whilst they all have different standards, they tend to pick up solutions to problems from other companies. There is an element of willingness to look at the international context.

Some industries have European and International trade associations that produce much information to which some attention is paid. However, HSE is not sure how much of this filters down to the smaller companies, there's a feeling that only the big issues will be taken on board by SMEs due to their limited time and resources.

Health versus safety

Ill health doesn't always have obvious effects or dramatic consequences so there is not the urgency of finding a solution. Due to the fact that there usually aren't any instant fatalities and conditions develop over years, ill health tends not taken as seriously as it could be. Ill health builds up a head of steam whereas an accident is immediate and has to be dealt with as such. It also takes longer to establish causes of ill health.

Role of trade associations and other bodies

Trade associations have to justify their existence as companies have to pay them membership fees. Consequently they have to sell any advice they give on Health and Safety as a benefit/better service and they do this by working with HSE. Most in this sector don't do any accident analysis themselves although there are some exceptions. Some of the trade associations in the broadcasting industry do some accident analysis but the extent of the detail is questionable

For a specific incident, HSE's involvement is vitally important as HSE facilitates the learning lessons process.

Arrangements within HSE

The sector's role has been to identify what the priority areas are across the industries in terms of accidents and ill health. They discuss common problems with representatives from these industries that may lead to guidance and HSE publications. Accident analysis is something that the sector has always done, in industries that have been identified as having a bad accident record, they have established the main causes of accidents and had campaigns to highlight these issues. The sector raise awareness and make the companies think about what they can do about issues with the aim of ending up with some guidance. The sector also handles enquiries from people within those industries and internal enquiries from colleagues in HSE and LA's.

The importance of HSE guidance is underestimated. There's a big difference between guidance written by sector and that by people in policy, who have little operational experience. The sector works with the industry on developing guidance and discusses issues with them. Industry involvement is key; this will lead to a practicable solution.

A Sector Managers Forum used to exist but this was disbanded. Consequently, the band 2's of the sector called for an annual sector conference where good practice and ideas could be exchanged. This was facilitated by senior managers but it all fell apart and the conferences no longer take place.

The sector has some international contacts but these are fading as there is now less involvement in European work.

When there are major incidents, the industry is keen to be informed of the results of HSE's investigation and where appropriate they disseminate that knowledge through the liaison groups with the various trade associations, sometimes in the form of press releases. If guidance is issued then that is shared with trade associations and filtered down into industry through them. This could be more effective if the sector had more time and more resources.

The sector runs seminars for industry and also attends seminars run by industry. This is a good way of getting to people in industry but you have to have a target audience and a clear message to give. A fair amount of work is done in this area but resources are an issue.

Barriers to learning

One of the key problems is a lack of corporate memory, you end up repeating the same things on large cycles and need some form of continuity management. People move around a lot in HSE and this can mean that there is a lack of paper files and those that do exist are not maintained properly. This can result in there being no background information on some companies and sectors. Data management is key and needs to be handled properly. The new data management system should improve things and be more easily searchable. HSE should see

a positive change in how they handle/store information as familiarity with PC's and data management increases.

7.4.4   Construction sector

Overview

Most of the work in the construction industry is carried out by a few, very large, companies who use subcontractors. The industry also contains many self employed workers whom HSE don't know much about. The type of work undertaken includes construction, demolition and asbestos removal. Over recent years there had been a lack of trained people working in the sector and this has resulted in the big firms beginning to push training initiatives.

The industry had around 55 fatalities in the last financial year. Accidents are usually not happening to the direct employees of the large firms but to subcontractors. This has led to a trend for fatal accidents to occur to people HSE don't know very well.

Learning from internal events

Larger firms tend to have learning lessons policies in place and some are quite advanced. The industry does some accident analysis itself but very often this is statistical. Whilst this can be helpful, if you're only looking at serious accidents, the figures will be very low resulting in the statistics being doubtful. Firms sometimes look at the root cause but the extent of this can be variable, some get research organisations to help them analyse accidents. The conclusions may be a lack of training and the bigger firms will learn from this. However, a small firm will often not learn and they can be very difficult to educate as they tend to think that accidents won't happen to them. In general, the larger firms are quite good at drawing out lessons from accidents and routinely disseminate information although only a few are good at getting information to subcontractors.

Learning from external events

Large firms will learn from other companies in the sector. Serious accidents are well reported in the construction press and are therefore in the public domain. Companies do converse with each other and will share incident information to aid the learning process. The industry has regional H&S groups which the large firms attend along with a few of the smaller firms. These groups are a forum for an open exchange of ideas and experiences and there is no commercial secrecy.

The Standing Committee for Structural Safety (SCOSS) is an independent body established by the Institution of Civil Engineers and the Institution of Structural Engineers and others to review building and civil engineering matters affecting the safety of structures. Their main function is to identify trends and developments which might contribute to an increasing risk to structural safety and to advise industry. Its reports are published biennially although other publications are periodically produced to encourage the collection and dissemination of experiences.

There appears to be little cross-sector activity. Some firms in the sector operate internationally but they probably don't actively learn from other countries, as the UK is perceived to be the best. The accident stats in the UK are probably the best in the world.

Health versus safety

Larger firms have recently begun to start thinking constructively about health although they will have a policy for health issues. An industry body, the Major Contractors Group (MCG), have

agreed to publish health statistics annually. The asbestos stats are dreadful now but it is anticipated that they will be worse in 20 years time. The industry also gets a high occurrence of vibration related diseases and deafness and claims resulting from these injuries have led to something being done. The industry can be very stressful with a lack of job security and stress related issues are increasing.

Role of trade associations and other bodies

HSE have traditionally produced lots of guidance but are moving away from doing that. Guidance that is produced will usually have resulted from industry consultation.

HSE has various ways of talking to industry in large numbers so that it can disseminate information and facilitate a consistent approach to learning lessons, e.g. HSE meets with the Major Contractors Group and also organises seminars for senior health and safety people from the large firms to try to get an exchange of information and ideas.

The sector also organises events currently aimed at encouraging learning in smaller firms, such as Safety and Health Awareness Days (SHADs) although it is often difficult to get them to take part due to the lost earnings while attending. SHADs attempt to make the industry aware of the priority issues, e.g. fall prevention, and they try to use construction workers who have been injured at work to get the message across. Industry will be more inclined to believe a fellow worker than HSE.

The Institution of Civil Engineers (ICE) also promotes some ad hoc learning, but has no formal systems. The ICE will sometimes host meetings following large incidents, and disseminates information via journals and proceedings.

Arrangements within HSE

HSE gets to see reports of fatal accidents quickly (basic report within 24 hrs of occurrence) and the stats are collected rapidly within the sector. Accident data is analysed by the sector, who work closely with CoSAS, producing a construction factsheet. The sector also use BOMEL to do statistical analysis on accident data. The resultant information on accident data is used to inform the sectors workplan and intervention strategies. In general, incidents result from people falling off and through things and the lessons are well known and learnt. HSE also respond to specific requests from duty holders for accident data.

Reliable health data is difficult to get hold of, but it is improving, it is now seen as a key issue in intervention.

There are big differences between the construction sector and other parts of HSE and there are no formal processes in place to learn from other sectors except for issues that form part of the priority programme. Construction sector have been working with similar sectors, e.g. Quarries on priority issues.

The sector relies on the good relationship it has with other organisations (e.g. trade associations, CONIAC, MCG) to effectively disseminate information. These fora allow the cross fertilisation and discussion of ideas.

HSE published some information in the trade press, e.g. trends in accidents, but otherwise information is mainly disseminated through guidance. The trade associations also disseminate information on accidents in the trade press. Statistics are published by HSE each year. The process is effective for major incidents.

Reportable accidents to the self employed are not recorded and reporting is sporadic with small firms.

Barriers to learning

A major point is that delays in investigations can prevent lessons being learnt. In the past, the unions have wanted to put out information about failure mechanisms following incidents, but were not allowed to go public until the investigation was concluded.

What could be improved?

The restructuring of HSE and a reduction in resources has meant that the time consuming process of accident analysis by CDTUs (Construction Division Technical Unit) has been severely curtailed. This will lead to a loss of knowledge on causal factors in the CDTU and a consequent reduction in HSE's influence to address problems.

7.4.5 Food sector

Overview

The food manufacturing side of the Agriculture and Food Sector is mainly made up of factories that differ greatly in their purpose, e.g., flour mills, slaughter houses, coca cola manufacturing sites. They are mostly national and international companies employing hundreds of workers.

The Scotch Whisky industry consists of around 28 companies, most of which are members of the Scotch Whisky Association (SWA). There used to be many more smaller companies but they have been incorporated into larger companies. The industry is the 5th biggest manufacturing exporter in the UK and is very important to the Scottish economy with approximately 10,000 people directly employed. The main focus of this description will be on the Scotch Whisky industry.

Learning lessons processes and systems within the industry

Because the industry is dominated by major employers they are much further ahead in terms of learning lessons than the rest of industry, in general. Companies tend to have professional safety departments and are very risk oriented. They have systems for accident reporting and trend analysis, with some companies having 6 or 7 safety staff who spend their time looking at statistics and trends. There are also a lot of small factories with a much less formal approach to learning lessons.

Learning from internal events

One of the larger companies has a number of risk management standards, against which it is audited. These include a standard for accident investigation that requires all accidents to be reported and investigated, and gives guidance on how accidents should be investigated. All incidents are recorded on an accident investigation management system and anyone who has access to the company's intranet can input the accident details (although it tends to be line managers who report them). It's not restricted to health and safety incidents; it could be a customs and excise, environmental or quality incident. The reporting system gives a structure/format which meets the requirements of the standard and there are two types of incident reports; a brief incident report (initial report which can be filled in by anyone) and a full incident report (which tends to be completed by line managers or someone trained in the

system). The full report goes into much more detail and includes lessons learned and corrective actions. You can allocate an action to anyone in the company and this person will then receive an automatic email to alert them. You can also set up a list of people who would be interested in a particular incident and these people receive automatic email alerts to inform them. It includes some near misses but this depends on the potential severity of the incident.

Smaller firms will have less formal systems but will still tend to have a health and safety management system that accounts for accident and incident reporting. They would establish what happened, the causes and any lessons to be learned. If they found anything that was relevant they would circulate it to the rest of the industry.

Learning from external events

The Scotch Whisky Association (SWA) is the trade association that represents the Scotch whisky industry. Following an incident at a member company's site, reports are often sent to the trade association, who then ensures that the information is disseminated to all companies including those who aren't members of the association. Generally it is only the smaller distillers aren't members of the trade association.

The industry is actually relatively small so communication is straightforward and everyone is very good at sharing information. Health and safety is a very 'open' area across the industry, companies understand that they can learn from others and can see the benefit of sharing information. The SWA has a very active Health & Safety Committee composed of representatives from several member companies, which has regular dialogue with the HSE. As well as its 'reactive' lobbying successes (ie on proposed legislative requirements), much of its time is spent on 'proactive' initiatives for the further improvement of the industry's record on health and safety. For example, it produces a considerable amount of industry-specific guidance.

HSE produce yearly tables of accident trends in all 33 industries of the sector, which they give to the relevant trade associations. Companies can then benchmark themselves against these, either against their part of the sector or across the food average. The perception is that all firms do this but realistically there are probably those who don't.

HSE also provide a free publication providing detailed information of injury rates for the year, it explains how to calculate injury rates for your company, and how to compare rates with the food average or all of manufacturing average. It also provides details of specific accidents and gives the breakdown of deaths, majors and over 3 days. This publication is supplemented by information sheets, one for each industry, which are given to the trade association and trade unions. These give a specific breakdown of incidents/issues.

The main problem for comparing injuries internationally is that reporting criteria are different in every country. This makes it very difficult to compare stats and benchmarks.

Health versus safety

There's more effort being put into ill health issues now compared to 10 years ago but there is limited data on ill health, only certain things are reported under RIDDOR, e.g. dermatitis, operational asthma. Manual handling comes under both safety and health. HSE produce a lot of food publications, for example on noise, musculo-skeletal diseases, dermatitis etc.

Industry thinks that ill health is much more difficult to deal with partly because of the confidentiality agreement which reduces the flow of information. They carry out health surveillance but it is quite difficult to get hold of the statistics on work related ill health.

Role of trade associations and other bodies

There are about 50 trade associations that represent the food manufacturing industry of which HSE have regular dialogue with 12. HSE has recently initiated a new Food Manufacture health and safety forum which includes all the key trade associations together with the trade unions with the aim of concentrating action on the main causes of injury and ill health. They use the trade associations as intermediaries for getting information up and down the system and find it very effective.

The SWA requests information on incidents to include in its Health and Safety Bulletin (published quarterly). This is the main way of disseminating information to the industry - the Bulletin is usually published directly following a Health and Safety Committee meeting. The SWA produces a catalogue of these incidents highlighting lessons learnt.

An SWA accident statistics survey is undertaken annually. The results are then published and circulated to the industry, including companies who are not members of the SWA. Companies then use these to benchmark themselves against the rest of the industry. The information is also put on the SWA intranet.

Statistics are only collected within distilling, warehousing and bottling. There's a pro forma, with number of employees recorded at the top along with the number of reportable accidents. The SWA then produces graphs and charts, and includes an anonymised analysis which illustrates the trends and the areas which need focus. The SWA's Health & Safety Committee then comes up with ideas for addressing these areas, e.g. workshops etc. The SWA also produces guidance/interactive training packages which tend to be more industry specific than general HSE guidance and therefore more relevant and focussed.

The SWA runs a couple of workshops a year that focus on issues such as human factors, asbestos, COMAH etc. These allow cross-fertilisation of ideas and generally involve 100 people from across the industry.

The SWA has close links with the CBI and gets information from them on what they're doing on taking forward larger/wider issues that may affect all industries not just Scotch Whisky.

Arrangements within HSE

The food sector started analysing accident stats earlier than other sectors. This was because the HSC annual plan of work in 1990 highlighted the food industry as having high injury rates. The sector started investigations and began to analyse accident statistics, identifying priority projects. This blueprint has since been used by other sectors and is a good example of HSE learning internally.

COSAS centrally gather the accident statistics, including any occupational ill health data, and provide them to the food sector annually. They then choose how they want to interrogate them and from this they get a picture of how many accidents a company is having and work out injury rates from that. The sector will also determine broad causes of injuries, e.g. manual handling, trips and by further detailed analysis sub-causes e.g. manual handling injuries from lifting beer kegs. These analyses allow the sector to determine priority areas to target which will lead to discussions with the relevant industry bodies to try to find solutions. Any solutions

found will be published in the form of HSE guidance and will be promoted by both HSE and the relevant industry body. Most sectors have someone looking at intelligence and statistics. The food sector also searches the internet and relevant articles to find additional intelligence on accidents and their causes.

The industries in the sector differ so greatly that generally issues are not transferable and few lessons can be learnt across industries. Although most injury causation is common to all industries, detailed industry specific assessment and guidance is needed on sub-causations. Generic stuff and priority topics are easier and cut across all industries. The sector read papers and look at articles from other countries but there are no forums for getting together with international counterparts except for the involvement in European Standards work

The sector tries to understand the underlying causes of injuries so they can feedback that information to the trade associations, giving them the opportunity to learn. Meetings with the trade associations and liaison groups are a good way of distributing information as guidance. The sector has no enforcement powers in the industry and can only act in an advisory capacity, so all their work is done by using good working relationships and companies cooperate as they like good PR.

Barriers to learning

The food sector perceives two main barriers to the learning lessons process. The first is connected to communication and the changing structure of HSE. They feel that HSE don't understand the role of sectors and tend to think that the sector are only there to answer questions from field inspectors. Whilst it is agreed that this is part of their role, they think that they are also there to gather intelligence, to keep HSE on the right track and to communicate effectively with the industry. The sector think that decisions are being made by people who are not aware of the structure of the industry and the sector has become ineffective as a result of these decisions and they have lost their power to manage the industry sector. Non priority sectors have lost the ability to direct field inspectors on what to look for when they carry out inspections.

The second barrier is the loss of publications and seminars. The moratorium on publications has made it difficult to keep up the profile of HSE. The sector feel it would be a disaster if HSE stopped producing industry-specific publications as these are a key public face of HSE to industry. Publications produced by the food sector are effectively 'contracts' for action on what has been previously discussed and agreed between HSE and the food industry. The food section holds a national conference annually which brings everyone in the industry together to discuss common goals, however HSE funding for this was refused in 2004. Communication with industry is a major part of the sector's work, but this has been reduced in recent years due to downsizing.

What could be improved?

Industry thinks that it can be difficult to manage the different priorities that often come about as a result of being regulated by different HSE divisions, e.g. FOD vs HID (COMAH). They are also looking at better ways to improve publications, workshops and better methods of delivering information, e.g. videos, interactive mediums and the internet.

7.4.6   Health services sector

Overview

The Public Services Programme specifically identifies the health services sector as a key area to deliver the Governments targets for reducing sickness absence and ill health incidents. Underpinned by the Ministerial Task Force on Health, Safety and Productivity, a strategy has been developed to help managers and staff throughout the public sector to improve attendance management with a view to reducing both short and long term sickness absence.

The health services sector has been specifically tasked with providing a major contribution to delivery the strategy. The healthcare sector (NHS and independent) employees approx 2 million people, and is seen as one of the biggest employers in Great Britain. It includes a large range of organisations, from NHS trusts with up to 10,000 employees (there are approx 300 such trusts), through to a vast number of nursing homes with 5-6 employees.

Current HSE activities include a compliance based programme of inspections, improving knowledge and expertise, commissioning research and collaborating with other agencies and regulators to improve overall health and safety management performance.

Learning lessons processes and systems within the industry

In 2000, an Expert Working Group, led by the Chief Medical Officer, acknowledged there had been little systematic learning from patient safety incidents, and drew attention to the number of potentially avoidable events that resulted in unintended harm to patients [Dept. of Health, 2000]. It proposed solutions based on developing a culture of openness, reporting, and safety consciousness within NHS organisations, and called of the established for an infrastructure to monitor and manage such mechanisms. It sowed the seed for a new national scheme for identifying patient safety incidents to gather information on causes, to learn and act to reduce risks and prevent similar events occurring in the future.

As a result, the National Patient Safety Agency (NPSA) was established in 2001 to improve patient safety, and to coordinate the efforts of all those involved in healthcare to learn from patient safety incidents. It aims to encourage staff to report incidents and near misses without fear of personal reprimand, and to appreciate that by doing so, lessons can and will be learned.

The NPSA encourage NHS organisations to conduct root cause analysis of incidents, and provide guidance and tools (specifically for clinical incidents) to aid this process. It helps to promote a learning culture by undertaking investigations and widely disseminates the lessons learnt. The NPSA have set out seven steps to patient safety that NHS organisations should take to improve patient safety:
- Build a safety culture; a culture that is open and fair
- Lead and support staff; establish a clear and strong focus on patient safety
- Integrate your risk management activity; develop systems and processes to manage risks and identify and assess things that could go wrong
- Promote reporting; ensure staff can easily report incidents locally and nationally
- Involve and communicate with patients and the public; develop ways to communicate openly and listen to patients
- Learn and share safety lessons; encourage staff to use root cause analysis to learn how and why incidents happen
- Implement solutions to prevent harm; embed lessons through changes to practice, processes or systems

This replaces 'doing less harm' and is the expected guidance for organisations to set their 3-5 year strategy.

Currently, the NPSA secures information from staff reports, patients and reviews of other organisations that collect information. This is then processed to consider the solutions and to determine what could and should be shared across the NHS. There are there levels of sharing – alerts (for which urgent action needs to be taken by a specific deadline which will be monitored), notices (for which organisations may want to note the issue and take action where appropriate) and information (this is for information only to raise awareness).

It has been acknowledged that the health services sector should concentrate on learning lessons from other sectors, similar in nature, where there is a high dependency on professional competency e.g. aviation. However, it is not clear whether this has been followed up.

Learning from internal events

There a number of mechanisms through which Primary Care Trusts and Acute Trusts learn lessons, for example, risk management strategy and supporting policies on various health and safety issues.

Learning from external events

There is strong support for promoting and encouraging staff and patients to ensure that incidents, near misses, etc. are reported to the NPSA and this information will be captured by the National Reporting Learning System (NRLS). It is expected that more than a million incidents per year will be reported.

Within the Health Service, there are also a number of other quasi-reporting systems in place to address 'estates' type issues, e.g. 'hazard alerts' to trusts on particular topics. In addition, there are a number of other agencies, which also interact with the healthcare sector, e.g. Medical Devices Agency (part of the Medicines and Healthcare products Regulatory Agency, MHRA) who operate a similar 'hazard alert' system.

Health versus safety

The sector is marginally better at acknowledging ill-health rather than safety related issues. In particular within the mental health care sector, issues, such as stress, are much effectively managed. There is capacity across the NHS to address health issues through the provision of local occupational health facilities.

Role of trade associations and other bodies

The Health Services Advisory Committee (HSAC) provides us with a mechanism to engage with a variety of representatives across the NHS and independent healthcare.

The recently established NHS Employers Confederation leads on healthy workplace issues and provides advice and guidance to NHS employers on key workplace areas ranging from health and safety, to managing sickness absence and stress.

Arrangements within HSE

The Public Services Programme consists of a number of projects with other key regulatory bodies across healthcare, and through this work exchanges valuable information and data on accidents and ill-health. Through a shared agenda to reduce sickness absence and improve delivery of public sector services, there are complementary work activities in hand to ensuring good health and safety performance is key to overall business. All of this work is underpinned by sharing experiences and lessons learnt.

The Public Services Programme also conducts regular analysis of accidents and ill-health incidents to inform both policy development and operational activities.

Barriers to learning

There are many acknowledged barriers – ineffective communications, blame culture, fear of litigation and variances in risk management expertise across the NHS.

The NPSA has no enforcement and/or sanction powers. It is based on voluntary participation and lacks the power to require information.

What could be improved?

One of the problems is that although the information gets disseminated, often it is ignored. There's no monitoring of whether anybody does anything about it. They know about the incidents but do not necessarily learn.

The main issue with learning from mistakes is not the mechanisms for learning from a particular incident, its cultural memory. Anybody in an organisation can analyse a disaster, look at what went wrong and put mechanisms in place to prevent it happening next week, but they don't necessarily prevent a similar incident happening in future years.

There should be a framework to encourage more effective collaboration and sharing of information. This would include greater capacity to consider lessons from other sectors, government departments, agencies etc. and greater cross fertilisation of ideas – e.g. comparing similar organisations / and scales of employment (possibly the Local Authorities) to identify lessons or successful outcomes, in particular successful health and safety management criteria factors.

7.4.7 Hazardous chemicals sector

Overview

Sites that fall under the COMAH (1999) regulations have a requirement to identify and act upon lessons from accidents as part of their safety management system. It should be specifically covered in the safety report and there are legal requirements on both the operator and competent authority to ensure that attention is paid to the lessons that can be learnt from accidents.

Learning lessons processes and systems within the industry

In general terms, a good health and safety culture is usually found in companies that have a good overall culture. The best companies are generally those that admit to having accidents and want to learn.

Learning from internal events

Most reasonable sized companies do have a system for recognising, investigating and recording incidents. There are systems and policies for line managers to take actions to prevent incidents and they will often buy in commercial products to aid their accident investigation. In general, they tend to be very good at investigating individual incidents, and writing full and detailed accident reports, but are weak at learning the wider lessons. They will deal with immediate causes but are poor at dealing with root causes, learning wider lessons and transferring them to other situations. The larger companies in the sector used to have corporate safety departments but as parts of the business have been sold off, they no longer have these safety people.

The important part of learning lessons is the investigation methods and techniques used. It's essential that they allow you to get to the root cause and that there are systems in place to use the information and disseminate it further. Smaller firms won't be as good at disseminating information to higher management and informing the rest of the firm of lessons to be learnt.

Learning from external events

The chemicals industry does have processes for learning from other companies and the trade associations are very proactive in facilitating this, e.g. if an accident happens in the UK or abroad they would provide a synopsis of the incident and send it out to member firms. However, they probably don't learn from underlying human factors causes and quite often don't translate across, i.e. they will only tell you if you've got an identical system. Industry generally won't provide root cause analysis to trade associations, they tend to only pass on high level information. Trade associations tend to take the accident data and refine it so that they can look at trends (in the main causes) and overall statistics.

Health versus safety

Occupational ill health involves a completely different set of people to safety. Many firms monitor ill health in terms of absences but they don't generally look at what occupational health causes there were. Ill health has become more prominent over recent years. One of the problems with the health side is that you start to get involved with individual susceptibility and medical confidentiality. Additionally, the causes of ill health are not obvious and not well described. Ill health is often chronic and can lead to the perception that you are not suitable for the job.

Role of trade associations and other bodies

Following large scale accidents, HSE will publish a report and make it available to the industry, however, they don't check that individual companies act upon the lessons learnt. HSE don't have a legal basis for insisting that trade associations do anything as they're not duty holders. If HSE want to raise an issue with a trade association they will often provide a guidance sheet for the association to give to their members. HSE have most direct interaction with trade associations and similar intermediaries. They only tend to get into individual companies through field inspectors.

HSE's role is changing and increasing. HID have created a trade link, the chemicals and downstream oil industries forum (CDOIF), a tri-partite based forum which includes trade associations, trade unions and HSE. The forum gives access to industry groups from distinctly different industries although many of the smaller trade associations are not represented. CDOIF has a standing agenda item for reviewing serious incidents with a view to passing any immediate lessons learned to the relevant industry group. HSE find that they can better influence the industry through CDOIF, by telling trade associations what HSE thinks are good ideas and promoting good practice.

Arrangements within HSE

Information comes in through RIDDOR to the incident contact centre and is analysed centrally. The statistics section will look at the number of accidents in a specific sector or the different kinds of accidents. The sector then tries to pick up on the HSE data and make sense of intervention plans and the reasoning behind them. It takes overarching issues and makes them into work programs. Where major accidents are the issue then the inspection programmes will be substantially based on accidents.

The sector compiles an annual list of all EU COMAH reportable accidents. They also carry out some analysis, e.g. the Loss of Containment accident analysis work [Collins and Keeley, 2003], but think that this would not be necessary if the information was recorded as a matter of course when the accident report was filled out. The investigating inspectors are in a better position to identify the underlying root causes. If analysis shows that certain precursors occur regularly, they can be put into the performance indicators of inspections thus ensuring lessons are learnt.

Part of the sector's work is reactive. They carry out field support in response to specific questions and will also devise a central response to any perennial questions from the field. If an issue appears to be a common problem, the sector might investigate further and feed the findings back through the field. FOD have got more direct contact with companies and so the sector can let FOD inspectors know what to look out for in potential COMAH sites. The sector has good links with FOD and they get lots of queries from the field as part of their support function.

Information is available in terms of the HSE led priority programmes e.g. falls from height. The sector have taken this forward directly to companies through inspection initiatives and have also talked to the relevant industry organisations about findings. Priority programmes are deliberately aimed at cross sector issues and the chemicals sector does exchange views with other sectors. There is a Head of Sectors Forum, which the sector contributes to which aids the exchange of information between sectors.

Generally, the sector hears about international incidents through news services, but also from trade press and the MARS database. International incidents, e.g. the Toulouse explosion, have led to checks to ensure that the same incident couldn't be repeated in the UK.

The networking of information is pretty good, HSE tells the trade associations and they tell their members. However, it is unclear whether or not it is acted upon. Most trade associations don't do any evaluation of the actions that they take and also don't think they should be doing it. Trade associations don't represent HSE to their members, the process only works the other way round. Their purpose is to protect their members' interest, i.e. to warn members about what HSE is targeting.

Following an incident, a company reports the incident, and HSE decide whether to investigate. The report produced by HSE following an investigation will be sent to the company but it wouldn't routinely be shared with other companies. However, some inspectors would think 'this could be happening at other places' and would do something about it, although this wider learning is down to individual inspectors and is very ad-hoc.

Barriers to learning

One current problem is the way that incidents are recorded, it is often difficult to analyse them at a later stage to learn the wider lessons. We learn well in the short term, when the primary objective is often to get a case to court and win it rather than learning the wider lessons.

What could be improved?

For accident prevention, a lot more time and effort needs to go into human factors education and training. There's no quick fix, you need to change the culture and bring in occupational health and safety people. HSE tends to have 3 year initiatives which go on the scrap heap if they don't work – however a changing of culture takes much more time.

HSE has investigated many accidents and carried out thousands of inspections all of which are reported on an individual basis. However, we currently have no way of analysing that data collectively to find out where the issues are. One of the problems is how we record the information, current systems don't allow the information to be recorded so that it can be analysed easily. COIN may help.

HSE often produces huge investigation reports for specific incidents, which are not the best way of learning. However, they are important for the public.

7.4.8   Local authorities and local authority regulated sector

Overview

There are 410 independent Local Authorities (LAs) who enforce health and safety, comprised of elected members. They are bound by HSC to adopt a common enforcement policy; there are EA (enforcing authority) regulations that determine who will inspect where (i.e. HSE or LA) based on the 'main activity' at the premises. These regulations cause some problems and are targeted for improvement/review. HELA (Health and safety in Local Authority enforced sectors) circular 23/15 is an A-Z list of who enforces where. The Local Authority Unit (LAU) of HSE is the focus for liaison between LAs and HSE. However as the LAs are all independent, it is hard to communicate with them globally and HSE can't direct what they do. As a unit, LAU is well joined up and outward looking. They are currently moving towards a strategic role to support the HSC strategy (working with LAs program).

LA enforced areas include: retail, offices, warehouse and distribution, and leisure industries, i.e. areas where there is notably more public involvement in work activities. There are a number of grey areas. LAs are limited to enforce 'in premises'; if work activity is outside, e.g. on a road or a window cleaner, it falls to HSE. This causes lots of problems that are currently being looked at. There are a set of policy rules with respect to warehouse and distribution. The LA sector is largely made up of the service economy and is very fast changing, but the regulations haven't changed since 1998. There are now different types of businesses that are hard to categorise with respect to whether they should be HSE or LA enforced.

The LA sector comprises around 1.2 million businesses/premises and around 12 million employees. A key point is that as the economy is changing, this area is growing. The LA sector is very important and is key for meeting the revitalising targets. LAs need to make a greater contribution. Operational intelligence is key; gathering and having in a useable form.

Learning lessons processes and systems within the industry

Large companies have policies for learning lessons.

There is an interesting issue related to the thrust to change from ALARP to 'due diligence' in parts of the retail sector. The businesses have corporate systems (that include systems for checking on e.g. store managers), therefore they feel they've done what they need to, but these

systems may not be implemented at a local level. Accidents tend to be blamed on the local manager; they say they have a system and issued a warning and therefore it was his fault, and therefore lessons are not being learned.

In addition, although the larger retail companies have corporate systems, their greatest concern is their reputation (as they are services oriented); brand integrity is their main driver. This could be a powerful lever if it could be linked to health and safety.

Learning from external events

The National Retail Association meet with HSE two to three times a year. They share information on what's new/what to focus on, but there is almost no corporate sharing (i.e. sharing between companies); there is some discretely in the meeting margins, but there is generally great reluctance to do this. Often different companies have very different views as to the best/safest way to do things in spite of research findings; for example there are differences of opinion with respect to pushing or pulling trolleys.

Companies in this sector generally don't like talking to each other. There is an inter-bank group, where the health and safety advisors for the major clearing banks have a level of exchange of information, but there are other sub-groups that they have never penetrated or contacted, e.g. merchant banks. The two groups generally don't talk to each other, but there are some who are in both, e.g. Barclays. The insurance industries also don't talk to the banks.

Health versus safety

Some companies have good approaches to looking after staff; they have well being programs and are good at sharing information with their sub-businesses, but there is no sharing with competitors, as they are in a fiercely competitive area.

Some LAs have obtained funds from Primary Care Trusts to drive forward occupational health issues.

Role of trade associations and other bodies

Industries have forums for companies to meet and discuss health and safety, but not at a level of working detail. It is very general and they tend to only discuss successes. There is also very limited verbal exchange of accidents/sharing when HSE/LA are not present. Companies would like to share more information but feel the competitive culture is too great a barrier. They don't want to put themselves in a position where they could be compromising their company brand integrity. Therefore their comments are very guarded. There are other avenues for sharing e.g. via IOSH (The Institution of Occupational Safety and Health) or CIEH (Chartered Institute of Environmental Health), but due to the changing nature of businesses, 40% of their members are no longer in LA enforced sectors. It is believed that there are plenty of forums for sharing information, but this is all at a general level rather than a business level.

HSE found it impossible to set targets by agreements with industry, as the industry bodies say they don't represent the whole industry. To work at a strategic level with these organisations is therefore very difficult.

HELA hold an annual conference and publish a newsletter that is sent to many people/organisations.

Arrangements within HSE

LAU rely on COSAS to analysis RIDDOR information and produce sector specific analyses. They have identified trends by type of injury and illness; in the LA sector, call centres are an area of great concern as well as musculoskeletal disorders. Strategies for dealing with small firms and health etc. have been used, looking towards enabling LAs to think of other avenues to promote national health initiatives, to complement other initiatives.

LAU have no access to the 410 LA data systems. There are no central systems, instead there are internal customised systems in each LA that HSE can't interrogate from the centre. The number of different systems also makes it difficult for LAs to communicate with each other or with HSE. LAs supply statistics voluntarily to HSE once a year (90% of LAs do this) that are compiled into the HSE annual statistics report. LAU are also trying to get LAs to complete standard inspection report forms and submit to HSE for analysis. To date around 40 LAs have been using this, so it has not been as useful as hoped; the main problem is that it requires 'double entry', i.e. entering information into their own and this system, and there is a lag time for entry.

A key issue for HSE is communication with LAs, i.e. how to communicate and through who. They are trying to use LACORS (Local Authorities Coordinators Regulatory Services) as a conduit. LACORS are a relatively small body who help to determine policy and represent LAs at a national/strategic level and are supported by 'top slice funding' from all the LAs. They were previously involved in producing statistics and guidance but this role is not perceived for health and safety.

HSE do communicate with LAs and issue sector specific guidance for inspectors (based on relevant HSE operational circulars) direct to LAs. They also issue LA circulars including HSE guidance of relevance via HELA.

LAU also lead HSE's involvement in the Lead Authority Partnership Schemes (LAPS) which are a way for LAs to work strategically with businesses; these schemes have been going for many years with the aims of improving consistency of enforcement and compliance. Various initiatives are ongoing, and the process is evolving at the LA level. 100 businesses are signed up as partners to work with LAs to improve health and safety management. The LAPS used to do voluntary audits, carry out safety management reviews of companies and agree reports and generate action plans. There is mutual benefit for both sides of such schemes, however there are some problems. Some LAPS have lapsed; LA Environmental Health Officers (EHOs) have moved on and the relationships haven't been maintained. From an LA point of view there is a barrier to involvement in LAPS as they are resource intensive solutions.

LAU are trying to set up mechanisms to improve communications, lessons learned and sharing of good practice. A wealth of information within HSE is not readily accessible by LAs. A secure extranet is under development so that HSE information can be accessed by LAs.

Barriers to learning

If companies don't meet through trade associations, they don't meet at all, and there is therefore no opportunity for learning and sharing.

Sometimes barriers may be due to the culture or just down to a particular individual. They may think that it is enough to just learn internally, and there is no need to look externally. Lack of resources can also mean that time is only spent looking internally.

Some businesses are part HSE, part LA enforced which is problematic and generates lots of anomalies and difficulties. There are also difficulties determining whether certain activities should be HSE or LA enforced. There is also great diversity of views/opinions of the companies in terms of whether they would rather be enforced by HSE or LA.

Some LAs do nothing proactive in terms of health and safety; audits are carried out on their arrangements but there are very limited resources and no direct sanction if an LA isn't conforming to enforcement policy, for example.

What could be improved?

Better communication with LAs would be beneficial. Better communication is also needed with HELA; HSC sets priorities (e.g. occupational health), but very often the LA response, endorsed by HELA, is that specific issues don't 'match' these. LAs state that the biggest issue for them is passive smoking and noise levels, but this is not a feature of HSE priorities, therefore this needs to be recognised. A culture change and common understanding needs to be developed.

There is a consistency of approach issue regarding the investigation of RIDDOR reported incidents between HSE and LA. As the 410 LAs are independent there is also not much consistency of enforcement between them.

LAU would like to extend LAPS and using CDS (Communications Delivery Service) set up a group communications tool. This could be set up so that all in LA can see the company safety management reports and action plans, and use them to prepare for inspection etc.

Within HSE, a change in culture is needed to embrace more joined up working in line with the new programmes; LAs should also feed in to all programmes and be involved in decisions on policy making. IT infrastructure could also be improved and greater use made of IT.

7.4.9   Manufacturing sector

Overview

The manufacturing sector covers a wide range of industries, including woodworking, (heavy) engineering, shipbuilding, printing, plastics, textiles, rubber, quarries, ceramics, concrete, glass, foundries, steel and semiconductor manufacture, and motor vehicle manufacture. It is estimated that there are 3.7 million direct employees within the sector, plus the same number in contractorised firms.

The sector is mainly composed of SMEs, and there is great variation in the number of companies per sub-sector, e.g. at the extremes there are around 400,000 motor repair businesses and only 4 businesses in the cement industry.

There are many different trade associations for the manufacturing sector. EEF – the manufacturers' organisation, is the main representative organisation for the sector, having around 6000 member companies (predominantly medium sized companies representing around 1 million employees. EEF is a mutual organisation with 11 regional associations and hence operates as a regional organisation. They provide some services, which vary regionally, and members can also buy other services from them (e.g. health and safety consultancy).

Learning lessons processes and systems within the industry

Large companies have policies/processes for learning lessons, although the sophistication of these varies. Some companies (e.g. Pilkington's Glass) have very sophisticated and subtle systems. Small and medium sized companies (which account for the majority of the sector) generally don't have learning lessons policies.

In large companies, health and safety is sophisticated (e.g. linked to a high calibre, experienced, safety professional who works directly for or has the ear of senior management, and also manages assets and resources); in others, health and safety specialists are not perceived to be important, but are seen as advisers, not under direct control of senior management. Other managers are responsible for explaining lost time injuries and investigating causation etc.

The smaller companies will not have a full time occupational health professional on site. Larger companies probably will, but there will be a gradation between those who understand the importance of investigating and learning from an accident and those who exploit that to its full potential. Within this you will start to see near miss reporting, moving up the scale into using that data and learning effectively from it.

Generally small companies will do less than larger companies in terms of incident investigation, and will not go as far as root cause investigation. In addition, investigations will often be much more focused on the liabilities associated with incidents and managing their relationship with the insurer.

The most advanced companies will have systems the same as in chemical process plant, for example this will include e-mail alerts from colleagues as one dissemination route, internationally as well as nationally for multi-national companies.

There is increasing sophistication in managing health and safety in manufacturing industry; people are using economic examples to get the message across. A range of behaviours are observed, some of which are very sophisticated. In general terms, companies can be considered to be at one of three stages on a continuum towards self-regulation: 1) mechanical safety is the driver (e.g. is there a guard); 2) they are into systems; mechanical safety is in place, but there is not good training, and they improvise when things go wrong but firms would consider systems failures; 3) they consider behaviours, and think about human factors and motivation. Lots of SMEs fall into category 1. Analysis of accidents is very crude, e.g. only look to see if guard was in place. Companies in category 2 think improvisation is good and resourceful, but it can be dangerous; they would carry out more detailed accident analysis. Category 3 companies are a much smaller group.

Whether the company processes work or not depends largely on the type of event, e.g. accident, incident, or near miss. If it is something very focused, where there is a straightforward immediate cause, things tend to work well, i.e. where it is focused on preventing identical incidents, where there is a clear problem (and fix) involving e.g. mechanical failure. Processes work less well where there are behavioural causes, e.g. a FLT driver has been trained but does something stupid/aberrant. The information about what happened can be shared, but the solution is less obvious; there isn't the same general learning point.

Learning from internal events

Generally those firms with policies are the larger firms and multi-nationals. Most organisations have accident reporting and investigation procedures for either managers or safety professionals, although the quality is variable; some are very good, some very poor, although all will probably capture RIDDOR data.

The better companies record lost time injuries way beyond RIDDOR requirements; a lot of this is 'claims protection' driven, i.e. they are required to have such schemes by insurers, e.g. employees are required to submit a report prior to going home with an injury. Some companies also have occupational health schemes but some false claims have been found from this (good for industry but couldn't use as selling point!), and there are other stories of benefits from health surveillance.

The large companies carry out analysis of the data on a global scale; they tend to do it on an OSHA basis for comparability; at that level they will have some form of near miss reporting and will use as an indicator the levels of near miss reporting. Generally small to medium sized companies don't have near miss reporting systems.

Many firms do some root cause analysis, although this is often very crude. Some carry out more sophisticated analysis, although this is often well meaning and motivated, no shortage of good intent, but not really looking for root causes. Often the analysis of accidents is at a fairly high level (e.g. annual trends) and may not lead to issues being addressed in the right way. Sometimes this is also due to economic factors (industry is just coming out of a recession), e.g. cost of training. Often they use the cheapest, most obvious solution that addresses immediate but not underlying causes.

As a general rule, a lot of better firms (e.g. Tarmac, Anglo American) have recently increased the amount of effort they put in to try to reduce lost time injuries (some have worldwide company performance measures with zero targets). Lots of firms are moving to reduction of lost time injuries irrespective of the cause. The motivation to take sick leave depends on, among other things, whether employees are paid for sick leave; such issues affect the statistics, e.g. some companies will pay for work related issues but not others, therefore claims are complicated.

Learning from external events

At the top end companies learn from external events but there is no looking outside the industry/sector. The better companies do learn from each other, but it often depends on the industry associations, e.g. the plastics process industry issue regular safety alerts to all producers following events in individual companies. This is a fairly common technique.

In general firms are not secretive or retentive about safety/health information. However this does not mean the information actually gets to the people who need it. It is hard to reach SMEs; the people in industry forums are generally from the larger companies. Much sharing of information among competitors is however on a very informal basis.

The bigger companies also learn internationally as they operate internationally where information is concerned, although they may have different national issues. It is unlikely that companies routinely look abroad unless they are internationally linked.

Within HSE, if e.g. a major safety alert for a piece of machinery was issued, they would think about whether there was a need to invoke EC standards procedure and therefore they try to distribute lessons internationally where appropriate.

There is very little learning from other sectors; there are networks but they are not complete, and often miss generic, 'transferable' messages. It is very unlikely that experience in company A influences company B, for 2 reasons: rarity of the event; and events are often not perceived as transferable, even if a transferable element is there (e.g. fork lift truck incident). Companies see events as relevant in the same business but not in other businesses. There is a barrier of

perception; this is a strong part of the underlying culture "it'll never happen to me", and is a major challenge/barrier.

EEF have no formal mechanisms for trying to learn from outside the sector, but they have very good contacts with the other business organisations, e.g. CBI, etc. They also meet with European counterparts and try to share data but there are difficulties, e.g. competitive problems.

Health versus safety

Within the sector, occupational illness is increasing by 12% per year and this is a rising trend; there is therefore a need to focus on occupational ill health. However, most ill health is hard to recognise. There is also an issue of how to define occupational ill health; some definitions are quite narrow (e.g. conditions created or exacerbated by the workplace), while others take a much broader view of well being (it doesn't matter why someone isn't at work, the issue is that they're not at work).

There is much greater analysis of accidents (safety related events) than ill-health. There is a significant difference in the timeframe for ill-health injuries and they are not therefore amenable to analysis in the same way. In addition, for lots of ill-health problems, employees leave (e.g. cases of occupational dermatitis) and therefore the problem is not even reported.

There are also structural problems with occupational health in terms of managing the business: firstly, the health and safety person (if there is one) tends to get less involved in health issues – their role has predominantly been around the process e.g. in terms of e.g. machinery guarding; this has expanded into risk assessment and 'well being' areas, but with a few exceptions it has not really been a health and safety role. The health role has traditionally been more closely aligned with the human resources function; there has been a lack of joined up thinking in the businesses in that area.

EEF have recently produced a booklet for their members titled 'Fit for work' which is concerned with managing absence and rehabilitation, it aims to address some of the unknowns for employers in dealing with ill-health (i.e. people don't know what they can and can't do). For example this includes advice on how to deal with sick notes that are very unspecific about when it is anticipated the employee will return to work (e.g. if stress is given as the illness), and they haven't explored all the issues. Part of EEF's agenda is to get people healthy and back to work (the statistics demonstrate overwhelmingly that people are healthier in work than out of work) and they feel there is a lot to be done in this area.

Occupational health management needs to involve both medical professionals and managers. Much occupational health management is just about good general management. It's important to establish the underlying causes and work out what (as an employer) you can do about it, recognising the problems (e.g. factors not directly work-related that have an impact, e.g. commuting is a stressor). Companies need to be given the tools and confidence in occupational health areas (e.g. stress) to ask the right questions and do some simple things and move it forward in that way. Stress is currently a big area of interest.

Role of trade associations and other bodies

The trade associations carry out analysis of accidents; a high proportion of companies are a member of a relevant trade association. In general, trade associations want to serve their members, therefore there is no barrier to them providing information, however, they have to reflect their membership, so often e.g. one body will dominate and messages can be biased. They do their best, but are usually lobbying associations, and will have a strong bias in terms of

finance; they don't seem to make the link between asset and resource management and safety; they don't seem to understand that lost time injuries cost money (e.g. how much do you pay each year for people to do nothing, and what are you doing about it to help them come back?). Using rehabilitation/occupational health techniques including considering alternative employment in the company influences behaviour as people feel the firm cares etc.

Trade unions are also keen to learn lessons, where they are allowed to do so, e.g. safety is on the agenda of committee meetings, but there is little feedback on day to day. TU has a right to investigate but there are few examples that this takes place. Union membership has also retreated; there is a struggle for union and safety representatives (there is some evidence that having safety representatives leads to safer firms). Inspectors have a format for visits and these have been focused since revitalising. The agenda is set, and only those topics are considered at inspections unless something of evident concern is seen; Inspectors talk to safety representatives, but probably don't ask about safety inspections/accident investigations, therefore they probably don't know what they do.

One of the roles of the EEF regional associations is information flow and communication. Quarterly meetings are held which are a forum for sharing information including e.g. information on incidents. EEF also facilitate forums where companies get together and produce some specific guidance e.g. on equipment failure. However they don't collate information from members on accidents; sharing is more between members directly than through EEF as a conduit.

Facilitation of the learning lessons process by HSE also occurs. This is not very formal or systematic, but is a part of everything that is done, e.g. visits by inspectors, feeding information back via HSE/industry committees, issuing Sector Information Minutes (SIMS), putting information on the website. Learning lessons follows from everything that is done, but is not necessarily given the right scrutiny as a process; it is mainly reactive, not particularly planned or structured. It definitely falls within the sector remit, e.g. consider links to industry including sharing useful information, but is not particularly recognised or formal.

Arrangements within HSE

The sector uses a multi-layer view to looking at accident statistics; they are interested in the risk profile of manufacturing industries in terms of how bad the harm is, and who is at risk. COSAS provide the 'big picture' accident statistics, and they carry out more detailed analysis within the sector using the BOMEL technique. This analysis includes generating detailed accident profiles and drawing out factors that are underlying causes of accidents (e.g. domestic, systems/procedures, organisational, societal). The analysis also leads to suggestions of the types of interventions that are needed; a key element seems to be the need for effective behavioural interventions in different situations. Some of the information provided by COSAS is provided automatically, and some is specifically requested. The Knowledge management section is the link with COSAS and also generates key facts sheets. They are trying to get the statistics more closely related to the sector industries (8/16 'top accident' areas are manufacturing). They use this information to focus the sector approach, i.e. effort is targeted where the biggest impact can be made, for example targeting parts of the industry with a high risk profile.

Accident investigation reports can also be a useful source of information on causal factors. However, accident investigations are rare for certain types of incidents. Notifiers comments on RIDDOR reports are also sometimes of value as they sometimes provide information on causal factors as well as changes made by the company following an incident (i.e. lessons learned).

The knowledge management section is also used to collate information, e.g. examples of use of particular enforcement techniques, plus assorted other queries; this should help provide a better system to respond to queries in a more effective and efficient manner. The section will also produce position papers on various topics/issues that will be updated by anyone in the sector who works on a particular area/issue (i.e. this will be a system for amassing corporate knowledge and keeping it up to date).

A number of sector publications (e.g. Sector Information Minutes, Operational Circulars etc.) are often produced as a result of a single accident, or following analysis of accident data.

If there are fatal incidents within the sector, they are informed immediately by field inspectors. The sector immediately checks with the field inspectors with respect to what information can be released and issues press releases as soon as possible to explain the fundamental or immediate lessons.

Most learning/sharing of information occurs within the sector. The sector is very interested in working with trade associations, and in making the most of opportunities to influence people. They use intermediaries to talk to companies about a problem identified by HSE, as they think this is a more effective way of getting the message across. Trade bodies, industry representatives and IACs etc. provide feedback on issues affecting the industry, and these forums are used to feed information on lessons learned back to industry.

HSE hold a number of conferences throughout the year, and try to get speakers who are exemplars from industry to talk instead of HSE. There is a perception that Industry will believe other industrialists more than they would HSE, and this has been reinforced by experience; the message is much more effective (no ulterior motive, plus from the horse's mouth rather than second hand). The use of exemplars/case studies is also a very effective way to get messages across.

Best practice is being identified by contracted research and trade body work and then made available via industry health and safety forums. The website is also a good way to get messages out, if people look at the site.

It is also important to explain things differently depending on the size of the firm/complexity of their understanding etc. Methods of influence used include providing examples, exemplars, using publicity. The sector attempts to target the approach appropriately depending how far advanced in terms of safety management the company are to maximise the gains.

There is some cross sector learning initiated by HSE, for example they put out general cross industry press releases on generic issues. The sector also tries to make sure that things are brought to the attention of committees that HSE sit on. HSE has a key role to play in cross industry sharing of information. Industry groups work for their members, therefore it is not part of their remit to contact others, and their members wouldn't thank them for doing this; therefore this is a role for HSE at present. More cross-sector focus is to be planned for the future, and the sector is exploring an associated industry mechanism for this.

Cross sector learning within HSE is also limited, and is more informal. There is a sector forum, although not all sectors come to the forum. The sector has a policy of sharing cross-sector, but information flows and pathways are developing. There is lots of change within HSE; people are at different stages, breaking up old structures and forming new, e.g. CTGs; there is a settling period needed throughout the state of flux. Other mechanisms are also needed. More use could be made of the intranet/website. Communities of interest are also a potential forum for cross sector sharing, but it takes time for such things to develop and start to work.

Barriers to learning

Where behavioural change is needed, this is hard to do; it's very resource intensive, not easy to do, and you need to be tenacious. One approach that might be successful would be to get some of the large firms to bring about a change and then sell the benefits to medium firms, and use the supply chain to spread the message further, e.g. make it a condition of the contract to use suitable safety measures. This is quite tricky; it's difficult to find a toolbox for SMEs. Some firms have strict/good induction that includes safety, and is well thought out and structured; in others (often small firms), induction is ad hoc, and leads to people following bad custom and practice. The safety culture is such that it is hard to do better by industry. The role of the boss/supervisor is critical to enforce safety behaviours (or they could work against them). Companies find cultural/behavioural lessons harder to learn than e.g. lessons that require a change in hardware.

Ongoing legal action is sometimes a barrier to learning. Sometimes the industry has to wait before even preliminary lessons come out because there is a concern not to prejudice any ongoing legal action. There are occasions when only limited information can be released.

What could be improved?

The ongoing drive to focus resources on getting the message to very small companies, as they are currently missed, is essential.

There is a view that part of the problem with the issue (the apparent inability to learn from experience) is the way the message is sold to industry. Historically, the health and safety message has been sold in general terms, e.g. 'it's good for you', and has also been sold to the wrong people. Instead, it is necessary to sell the business message (i.e. sell health and safety as a competitive advantage), and sell it to the people with the influence. Recent work on the cost of accidents goes some way to selling a business message, but it is still a negative message. It would be more effective to calculate opportunities/benefits of health and safety, e.g. sell health and safety as providing a competitive edge. For example, it would be possible to look at what was learned from 'quality in engineering' in terms of quality improvement and exploit that: the best engineering companies don't really do health and safety as such, it is an integral part of production and quality, identified and carried out by the workers, not the safety function.

It is possible to sell the cost savings arising as a result of good health and safety management, e.g. companies will not then bear the cost of accidents, incidents and cases of ill-health, which could put them above their competitors. It is however generally a myth that insurers may offer reduced premiums for improved performance, so this benefit cannot be sold.

Better 'follow up' to messages/publications should be provided. We haven't worked out how to do more than just get people to buy publications. HSE tend to issue a publication with a big launch and then move on. The end product should be when people read and use publications; after care for 'messages' is needed; a different approach is needed for launching ideas; we need to ensure that messages 'land safely' and are acted on (the new communications director role should help in this respect). Guidance documents need to be marketed not just produced.

HSE should play a significant role in the learning lessons process where there are common principles to be learned. HSE could act as the conduit through which good practice flows. The use of case study examples would be really helpful and a very effective way to get information across. HSE could feed down what works, i.e. provide more exemplars. It would also be helpful if all HSE information was available to be downloaded free from the website.

There was a suggestion that regional health and safety awards (in addition to the European awards) could act as incentives for companies to improve.

Within HSE, systems for learning internationally are generally ad hoc, relying more on personal contacts than a process as such. To a lesser extent this also applies to all learning lessons/sharing of information: it is carried out subconsciously in an ad hoc way as part of many other activities, without enough consideration of who else (in HSE or wider) might be interested. Learning lessons is an integral part of HSE's business, and there is a lot of excellent work being undertaken, but it could be seen to be uncoordinated and patchy.

The learning lessons process would be improved by the development of better systems and mechanisms for this. Information received from the field is haphazard; often the field doesn't communicate with the sector. Systems to ensure better communication would help. In addition, accidents within the sector are seldom unique to the sector industries; mechanisms for learning from/sharing with other sectors need to be established. These mechanisms could also be used for sharing best practice.

7.4.10   Nuclear sector

Overview

The nuclear industry is very small, structured and highly regulated compared to other HSE regulated areas and has very different issues compared with other areas. It is a close-knit, discrete industry with a very different safety culture, and is the most heavily regulated of all UK industries. The industry is regulated by the Nuclear Safety Directorate (NSD) of HSE.

Parts of the industry in the UK are technically very different between themselves and also compared with the international nuclear industry. For example there are big differences between power generation and reprocessing (chemical), and between gas reactors and water reactors.

NSD and industry are mostly focussed on precursors as major incidents do not tend to occur. Incidents above a certain level are also reported openly to ministers (fast stream) even if they are really of low significance (i.e. as a result of political and perceived public concern, rather than risk based).

Learning lessons processes and systems within the industry

Companies in the nuclear sector have formal processes for learning lessons. There is a statutory requirement under the license conditions to report and investigate incidents (including precursor events; this is different to other parts of HSE/industry). Reporting within the industry is open and honest. In addition there is also good sharing of information between companies; they are not under any obligation to share but they do; that is the culture within the industry.

These processes work very well and are effective. This can be measured by the fact that the same event/precursor usually does not keep reoccurring as the industry does generally learn. Human factor issues are the area that the industry is generally struggling with, particularly root cause analysis. There is still a need to ensure that complacency does not set in.

License condition 7 states what NSD expect and require of licencees (i.e. their legal requirements) in terms of investigation of incidents and learning processes. NSD check that the required arrangements are in place.

The large licensees are very mature and well developed. There are differences however in the smaller or newer licensees. For examples, dockyards and Ministry of Defence sites etc. are not as mature and are very much on a steep learning curve. They come from a culture of not being open and not sharing, but things are improving. They get told to aim to be like British Energy (BE); BE gets told to be like the best plants in the US, i.e. there is a culture of continuous improvement.

NSD does not need to put much input to the major licensees (as their systems and processes are mature and effective); for these, the majority of the effort is spent checking that the processes are still working and are effective.

The technical differences between the parts of the industry can make sharing of specific lessons not very relevant although general messages are very useful. Sizewell B power station is very similar to those abroad, however, and it has networks with operators of these.

Learning from internal events

There are very structured processes in place to learn from internal incidents. The different sites share information readily as do different licensees. There exists a cross licensee forum to aid discussion, and sharing of lessons is part of this. NSD interact with such forums. NSD inspect the operational feedback at both sites and at the licensees' centres.

Learning from external events

Companies also learn from international incidents, both within the nuclear industry and outside. Any event of International Nuclear Event Scale 2 (or above) must be reported internationally to the International Atomic Energy Authority (IAEA) (in Vienna). All operators in the world do this, and the information is shared with all operators.

Licencees also have an international obligation to report and share incidents and have industry sharing mechanisms. They are expected to: identify and share events (including operational events); identify precursors and share this information; and to utilise operational feedback. They have a responsibility to have robust processes in place: on each site; across sites; between licencees; and internationally. The IAEA and the Nuclear Energy Agency (NEA) of the Organisation for Economic Cooperation and Development (OECD) have established an Incident Reporting System (IRS) for the exchange of this experience on an international level. The information is assessed, analysed and fed back to operators to prevent similar occurrences at other nuclear power plants. Through the study of widely based experience, IRS helps to accelerate identification of precursors, and reflects a systematic approach to the feedback of lessons learned from operating experience. This is a key element in the defence in depth concept used throughout the nuclear power industry.

The desire to learn from incidents and share the lessons is quite unique in the nuclear industry. Reputation drives this as do political, public and press pressure. NSD's role is one of public reassurance and stakeholder management.

Companies also actively try and learn from other industries, for example the Columbia (shuttle) disaster.

Lessons do not tend to be shared formally with other sectors. However, informal sharing does occur via consultancies, risk analysis forums, seminars, and other ad-hoc means.

Health versus safety

Radiation protection is treated as well as nuclear safety, but occupational health may not be. The reporting, learning and sharing of incidents is mainly focused on nuclear safety.

Licensees are very good at looking after conventional safety as well as nuclear safety. Good practice from safety management on the nuclear side feeds across to conventional safety.

For the chemical sites, FOD rather than NSD deal with conventional safety. However, for the power generation sites they don't tend to get involved as they would be far too low a priority (their health and safety performance is such that they would never be inspected). NSD site inspectors would tend to deal with anything on the conventional side in any case. NSD inspectors are on site about 30% of the time; this is very different to other sectors and as a result, companies tend to work with HSE. For example, if a site inspector saw dangerous scaffolding practice they would stop the work and the company would get it sorted straight away without the inspector having to resort to prohibition/improvement notices. A similarly close working relationship between HSE and duty holder is found in the mines inspectorate.

Role of trade associations and other bodies

International sharing occurs through various organisations, for example: IAEA, WANO (World Association of Nuclear Operators), INRA (International Nuclear Regulator Association) and WENRA (Western European Nuclear Operators' Association). WENRA looks at harmonisation across Europe, with respect to how to report/learn. This is best developed on the power generation side (compared with the reprocessing/chemical side).

The IAEA also produce standards and guidance; this is best practice, not mandatory but is usually followed.

Arrangements within HSE

NSD have systems for identifying relevant incidents and drawing out and capturing any lessons. Each site has a site inspector; they look at incidents and feed this to NSD and share with others. At an organisational level, operational feedback is examined. This enables NSD to look across sites and across the different licensees. Information is also shared across the divisions in NSD. Things reported to NSD go on an NSD database. Analysis and trending of data is carried out although probably not to the same extent as in other parts of HSE. This is due to the fact that the licensees do a significant amount themselves and NSD don't want to duplicate what the licensees are doing. The findings from analysis of incidents feeds back into inspector work plans for the following work year.

NSD's business management system specifies the processes for capture and dissemination of information, for example what is expected of site inspectors to ensure they share relevant information with their colleagues across the divisions. Heads of inspection teams meet regularly as do heads of assessment teams. All this helps prevent silo working.

NSD also look at non-nuclear incidents, for example the Columbia disaster and draw out lessons that are important for the nuclear industry. This they share with the licensees, as they do with other data. NSD also talk to other organisations such as the CAA (Civil Aviation Authority) who regulate a similar high hazard, high pressure industry.

7.4.11   Offshore sector

Overview

The UK offshore industry consists of over 300 fixed installations (producing oil and gas) and 30-40 mobile (e.g. drillers) installations. There are currently 50-60 major duty holders, mainly installation operators/owners, and about 23,000 offshore workers.

The offshore sector also deals with pipelines (now also in land division), diving (also inshore diving) and onshore drilling.

Learning lessons processes and systems within the industry

One of the key drivers for the industry is their reputation, they tend to get tarred by the same brush – if one company has had a bad accident then the public image of the whole industry is affected. This can affect their ability to recruit people into industry and is an ongoing issue. As a result the industry is keen to make sure that the weakest members are brought into line with the rest if the industry.

The industry recognises that contractors make up 80% of the workforce and that they are probably the most exposed group as far as workplace activities are concerned. The fact that companies are coming together and aligning on practices and sharing learnings is hugely beneficial to the contractor workforce. Additionally, as the contractors are mobile and move around from plant to plant taking knowledge with them, this benefits the industry as a whole.

Learning from internal events

The industry does, in general, have processes for learning lesson from internal incidents. The process is extremely formal in big companies, but more informal in smaller operators. Generally, within a company's safety management system, they will make reference to learning lessons. They try hard to promulgate lessons and the industry is data hungry which is a complete contrast to onshore. Almost all companies report near misses internally.

If an accident has occurred, the chances are that it has happened to a contractor as they form the main body of the workforce. The contractor will then have to make a formal presentation to the managers of the company. This will include what lessons can be learnt to ensure it doesn't happen again and what can be shared across the company and the rest of the industry. Clients expect their contractors to provide accident statistics to them when bidding for work and this will also include near miss data.

Even when larger accidents are still under investigation and subject to a court case, this doesn't stop the immediate lessons being learned and shared.

Safety committees are active on each offshore installation, elected safety reps attend and they meet every 3 months. They also talk regularly and there is good communication allowing them to share industry wide big issues.

Learning from external events

Companies are proactive at learning and sharing with each other across the industry. They will stand up and wash their own 'dirty linen' within the industry.

UK Offshore Operators Association (UKOOA) is an offshore industry trade association which has about 30 members representing all of the oil and gas operators on fixed installations in the UK. The organisation has many roles as a trade association and one of these is looking after safety issues. This role includes sharing lessons from problems by producing good practice to

address issues, holding workshops and conferences. UKOOA have a remit to take generic lessons and disseminate them to their members.

Step Change in Safety was launched at the end of 1997 and came about when the industry looked at its safety performance and noticed that the large improvements in reduction of injuries that had been achieved since Piper Alpha had begun to plateau or were deteriorating; the industry required a step change in safety. Step Change comprises all 12 of the industry trade associations (UKOOA is one of them), and involves almost everyone involved in the oil and gas industry in an offshore capacity and increasingly those onshore. One of the cornerstones of Step Change is the sharing of best practice.

Step Change also run a safety alert database called SADIE (Safety Alert Data and Information Exchange), which is jointly funded by HSE and industry. The purpose of SADIE is to facilitate the sharing of safety information and improve the lateral learning across the industry. It is not intended to be a comprehensive database of incidents and is not aimed at providing statistical information. The database has an open format, anyone around the world can input details about incidents and lessons learned. It has taken off hugely in the last 12 months with up to 100,000 people accessing data.

SADIE also records near misses. Companies choose what information they share using the system and they can decide not to share information at all. The system allows email alerts to be set up telling the recipients that the database has been updated and containing a link to the relevant page on the website. They can choose to look at it and it is up to the individual reading the alert to decide whether they take the actions recommended or some more actions specific to their needs.

Various workgroups are set up within the offshore industry. Following an incident, which the industry realises has issues it needs to address, a publication will result which draws on all the expertise of the stakeholders and produces best practice operational guidance. This process tries to ensure consistency and harmonisation throughout the industry. In 2003, a new workgroup was set up after it was noticed that a large number of high potential incidents were occurring, so rather than wait for the accident to happen, the industry decided to be proactive and take action to prevent it.

The offshore industry is always comparing themselves to other industries. Some companies in the sector benchmark themselves against other companies from a range of industries throughout the UK. This involves comparing their policies and procedures. There are also lots of committees, and therefore a large number of networks and information flow, that are discipline based and involve people from many different industries. Many of these people are also members of professional bodies. IOSH has an offshore branch, this keeps the industry abreast of legislation and HSE plans.

Many of the operators are international and so have their own corporate international policies. The industry as a whole primarily learns from other countries through an international organisation, the Oil and Gas Producers (OGP). They have a committee which meets on a 6 monthly basis. All oil and gas companies that are in the UK are members and people from all over the world attend (mostly USA and European). They recently launched a database, which looks at near misses as well as incidents and they also organise workshops and conferences in different areas.

There is formal liaison with Norwegian counterparts in the industry, although this is in a fledgling state. This is attempting to share information and lessons and there have been some successes and attempts to align processes.

Health versus safety

Occupational health comes 3rd behind safety and the environment in the offshore industry. Most companies in the industry struggle with occupational ill health reporting and it is not reported well offshore. It is currently a big topic in HSE but is not dealt with well. The RIDDOR regulations may be a problem, they stipulate that ill health incidents must be confirmed by a GP. There are no GPs offshore and by the time a worker is onshore the problem has usually cleared. It also gets complicated in terms of contractor rights, the offshore contracted workforce may not have all the benefits of an employee of a major company and may put up with issues like sore backs rather than report it as an injury. Generally, the industry has a pretty healthy workforce, you have to have physical fitness before going offshore.

The average age of workers is 49 and many employees have been involved in the industry for a long time. The industry are now starting to see health issues arise due to workers exposure years ago which has been monitored over a long period of time.

The industry have realised that there was a problem with ill health reporting and have agreed to adopt the Oil and Gas Producers scheme for occupational illness reporting. This means that they can now stabilise the data and set targets although it is a bit behind track. There are 21 major companies reporting into the scheme and there were 20 occupational illness reports in the last quarter. This suggests that there is huge under-reporting or they still don't understand quite what they're supposed to be doing. There's an issue of how you differentiate between work and non-work related conditions.

Role of trade associations and other bodies

The industry works together well with HSE, companies find out the results of inspections and lessons are shared. A HSE workshop is being held on accidents and incidents as well as addressing the issue of overdue maintenance work. All involved in the workshop will share lessons and good practice within the industry. HSE are seen as part of the network and have a close alliance with the industry, they have presented to a number of forums. There's a good relationship on the installations too although there are areas to be improved such as communicating the outcome of visits.

UKOOA chairs a group called the HSE Industry Liaison Forum, which meet quarterly to address areas of concern in the industry, although this is more from compliance side than incidents. UKOOA also communicate with inspectors and technical specialists and hold workshops for them to share findings.

Arrangements within HSE

OSD have a number of key programmes in addition to the HSE priority programme. Installation integrity is a key area at the moment (the age of equipment and plant). OSD are also involved in causation analysis and carry out lots of joint research with industry, which industry acts on.

The sector analyse RIDDOR reports in many different ways, which they retrieve from the main HSE database, although the quality of the data can be variable. This allows them to produce an annual offshore incident statistics report. The annual report includes accident rates and to do this they need population data which is difficult to get accurately. They are currently trying to improve the quality of this data. Bulletins are also issued in advance of the main report with the headline figures. The sector also provide information for various forums including the North Sea Oil Operators Forum, the International Regulators Forum and Safety and Health Committee

for Offshore Mining and other extracting Industries. The sector has strong links with Norway because of the similarities of sea and conditions to UK.

One of the recommendations of the Cullen report following Piper Alpha was that hydrocarbon releases should be reported using a scheme of reporting to be implemented by HSE on behalf of the offshore industry. The report form was produced and agreed with industry and implemented in 1992 as supplementary to RIDDOR. The database was designed and built by HSE and can now be accessed from the internet. Industry send data electronically to the database directly and releases are assigned three levels of severity (major, significant and minor release categories). However, OSD have control over the input and output data and therefore, have a good grip on its quality. The sector produce yearly reports following analysis of the database and you can now also get up to date information on-line. This will allow an operator to compare their installation with others on-line. The reports also include causation data but this is not used by inspectors for enforcement purposes.

80-90% of RIDDOR reportable incidents are reported in the offshore sector and an even higher percentage of hydrocarbon releases are reported. This is much better than in other sectors. HSE are now trying to incorporate similar systems for the onshore industry.

Barriers to learning

One of the key barriers, especially in large companies, is communication. They often struggle to communicate to all parts of the same organisation across world on their own issues let alone those emerging from other companies.

What could be improved?

The offshore industry is a leader in sharing, little of significance goes on that isn't shared. However, the industry isn't so good at implementing the findings and learnings, these tend to get lost when cascaded down. Another difficulty is information overload, if a person is bombarded with alerts/information then the message gets lost.

Reporting could be improved on the onshore side, especially the causation side.

None of the guidelines produced by Step Change or UKOOA are mandatory, a company can opt out of implementation. This doesn't compare well to Norwegian colleagues where guidelines are policed by the regulator and are taken seriously. Also, when producing guidance, it needs to be clear and simple for all levels of staff to understand.

The offshore industry want more detailed statistics than HSE provides. The industry finds it valuable when HSE gathers together findings from accident investigations and inspections and shares that information back to industry. Whenever this has happened, it has been extremely valuable to companies, people like to see actual examples. However, it is felt that a lot of the information that HSE inspectors gather isn't necessarily shared. Industry also think that the RIDDOR database and its analysis could be improved.

On the legal side, guides to what information can be released and when would be useful.

7.4.12   Pipelines sector

Overview

The gas and pipelines unit ensures compliance with the pipeline safety regulations for offshore installations through to the domestic gas supply. They also deal with safety cases which need to be accepted by the unit before the duty holders are allowed to operate, and COMAH aspects of these sites. Inspectors investigate RIDDOR notifications including the special gas notification within RIDDOR.

At present, NG Transco accounts for 95% of the companies in the sector and their main activities on the gas distribution side of the business are repair and maintenance. There's a major replacement programme ongoing (replacing iron pipelines with polyethylene) which is mainly being carried out by contractors. The focus of the following description is on the gas distribution network.

Learning lessons processes and systems within the industry

Under the Gas Safety Management regulations companies have to demonstrate an effective safety management system. HSE would expect to see a learning lessons process as part of this (accident investigation, lessons to be learnt and corrective actions) in their safety case. Any safety case that didn't have this wouldn't be approved. It's a fairly formal system that HSE would test on a sample basis during inspection. Learning lessons processes are mainly focussed on internal events.

Learning from internal events

The industry doesn't have a learning lessons policy as such but the overall H&S policy has a learning lessons part. They also have a procedure for incident reporting and investigation and an electronic incident reporting system.

Only trained line managers can input into the incident reporting system and this must be done within 24 hours of the incident occurring. There's an initial basic report which must be completed and depending on the category, safety alerts may be sent automatically via email or text. There are three categories of incident depending on the actual or potential severity. Investigation is the line manager's responsibility and they need to decide who is going to carry out the investigation. The level of detail required for the investigation depends on the category of incident with the two most severe requiring full investigation reports to be produced. The trade unions are involved with accident investigation along with line managers. Actions necessary to complete the recommendations of an investigation report will be tracked and reported monthly to the appropriate health and safety committee.

An executive health and safety committee meets every month for 2 hours. If any RIDDOR reportables have occurred in the last month, the line manager responsible has to go the meeting and present what happened and the lessons to be learned. More serious incidents will be reported to the national incident review panel, which looks at trends and common causes.

The primary mode for communicating the findings of incidents is a monthly health and safety bulletin which is issued to all operational employees and contractors. It's a safety briefing which includes accident statistics and incidents of interest which have lessons to be learnt. The industry is trying to use videos more and include employees, who have been involved in incidents, in them to try and get the message across.

Learning from external events

The industry is fairly large and therefore they tend to have enough of their own incidents to learn from. There's a gas transporters safety forum which meets quarterly. This forum shares

lessons but tends to be more about system integrity. There's also a European group but this again concentrates on asset integrity and has only just got going. They will pick up safety bulletins from others industries e.g. BT, but it's a bit ad hoc and generally only get information from existing networks of contacts. They do try and work with other companies proactively, for instance they have a lot of injuries due to violence and work with others on this common issue.

Although at present Transco accounts for the majority of the industry, they are going to be selling off a proportion of the network. This will lead to new issues regarding the external sharing and learning following incidents within the sector. HSE will start to look for a method in the safety cases which will effectively ensure that lessons are shared within the industry.

Gas producers who run the offshore pipelines are generally part of larger companies who manufacture oil and gas. The sector deals with the chemically type sectors who have similar issues to those in onshore pipelines. Other bodies share, e.g. UKOPA (onshore pipeline association) and UKOOA (offshore oil industry association) share information about incidents and also any technical findings.

International pipeline events go on all the time and there are lots of conferences. HSE attend some of these as appropriate and information is shared informally this way. For instance, if anything significant was found, HSE would then look to incorporate it into codes

Health versus safety

The main difference is that ill-health is a progressive injury. Incidents of ill-health tend to be picked up from the health surveillance process, which will tend to look more at trends. Generally if you get an acute symptom it will be picked up in the same way as safety.

HSE think there's a limited role for ill-health, the sector is principally concerned with safety from the pipeline and gas distribution systems, safety is always more immediate. However, the high cost of claims for ill-health has meant that the insurance companies have begun to get more interested.

Role of trade associations and other bodies

HSE is not fully in control of how information is spread around the industry because traditionally Transco have made up nearly all the industry and they deal internally with information dissemination. Improvements in the flow of information will be concerned with the gradual splitting up of the industry and ensuring that information is effectively disseminated. HSE are trying to encourage the industry into attending industry meetings at which HSE can also discuss issues. This forum may be suitable of the industry is split up equally.

HSE are represented on certain bodies e.g. the Institute of Gas Engineers but most of their influence on the gas industry comes from their interaction with Transco. They are now having to look at how HSE will be able to share knowledge once the industry splits up. In the offshore sector, safety alerts are issued and the pipelines sector is looking at doing a similar thing within their industry. Alerts will be also be issued to all inspectors.

Arrangements within HSE

RIDDOR dangerous occurrences (including the specific section on gas) get reported to pipelines sector and HSE do some analysis on the numbers. Transco keep their own records on the number of incidents with pipe breakage, and these are shared with HSE. Generally, the sector have only fed trends back to industry when a special contract has been set up to do some

statistical analysis on a specific issue. Guidance on the investigation of gas incidents has been published and this gives detailed advice on how to identify the root causes of accidents and act upon the lessons learned. Incident reports submitted to the sector under the Gas Safety (Management) Regulations are reviewed to see if they fulfil the criteria in the guidance, and the findings are fed back to industry.

The sector has got close links with OSD, pipelines are very tied up with offshore installations. UKOOA has international members so the sector get to know things offshore through that forum. If other sectors found anything that's of interest to pipelines it would be passed across although this is a fairly informal process. There are no formal cross sector meetings taking place to discuss things of common interest. The sector attends regular meetings with HID process safety inspectors in the field providing an opportunity to learn from the experiences of others.

The sector has tripartite meetings every 3 months involving HSE, IGT (Independent Gas Transporters) and Transco. At these meetings they discuss incidents and outcomes of these and all proceedings are fully minuted.

Within the industry, lessons are quite often not learned until the end of the investigation and this can hold up the dissemination of information. People tend to be very suspicious in the gas and pipelines field and they are not generally happy to share information about incidents (this may be down to issues of public concern).

Barriers to learning

The sector would like to see HSE being more open in the way incidents are dealt with and how reports are presented. A good example is what happens with the Mines Safety and Health Administration in the US. If they get a fatality, information appears on their website very quickly. HSE needs to be able to spread information more quickly and be more transparent. One of the main barriers is delays in getting the information out, particularly those delays associated with legal proceedings. They think reducing delay and being more open would improve the trust between the industry and HSE.

What could be improved?

One of the problems in industry is that when accidents are investigated, everything that contributed to the system failure is identified. This leads to a long report with lots of recommendations. You need to be able to focus on just a few recommendations with a one page report than can be produced quickly. This will enable industry to track the recommendations effectively and speed things up so that they can be closed out quickly. Industry also needs a more robust tracking proves to make sure that actions are closed out.

The sector would also like there to be some freeing up of what information can be made public. All reports should be available to the public and there should be no need to keep anything hidden. The internet is a good way of sharing information.

7.4.13   Rail sector

Overview

The UK rail sector can be divided into:

- Heavy rail: Network Rail as infrastructure controller; train operating companies (TOCs) who have franchises to run; and maintenance activities, which are currently carried out by contractors but will be coming back 'in house' over the next 12 months;
- London Underground Limited (LUL)/metros/light rail (tramways): this is a growing area. There are not some of the same hazards as for heavy rail (e.g. speed), but there are some very different ones;
- Heritage railways.

The Railway Inspectorate (RI) of HSE is responsible for regulating health and safety in the rail sector. In July 2004, the secretary of state for transport announced plans to transfer responsibility for railway safety regulation from HSC/E to the new Office of Rail Regulation (ORR). A precise transfer date has not yet been agreed, but it is anticipated that the transfer of responsibility will occur sometime in 2005.

In January 2003, the government announced legislation to create an independent Rail Accident Investigation Branch (RAIB) whose purpose would be to establish the cause of railway accidents. At the time of this announcement, the secretary of state for transport, Alistair Darling said, "the RAIB will seek to ensure that the root causes of accidents are understood, the safety lessons learnt and that investigation reports are published as quickly as possible". The RAIB is in the process of being set up.

The Rail Safety and Standards Board (RSSB) was established on 1 April 2003 to lead and facilitate the railway industry's work to achieve continuous improvement in the health and safety performance of the railways in Great Britain.

Learning lessons processes and systems within the industry

In addition to the RIDDOR reporting system, there is a confidential reporting system for the rail industry, CIRAS (Confidential Industry Reporting and Analysis System) that started as a pilot system in 1999. CIRAS collects information from railway personnel on safety concerns that may not be captured in other ways; it is a confidential rather than anonymous reporting system so it is possible to go back to the reportee to clarify issues. However, within the industry there are mixed views as to whether CIRAS helps with the identification of lessons.

There is also a centralised, single accident capture system for the industry, SMIS (Safety Management Information System). SMIS is a national IT system used by all Railway Group members to record all safety related events that occur on Network Rail controlled infrastructure. Legislation mandates its use so that all data is accessible to Railway Group members in order that they can use the information to analyse risk, predict trends and focus activities on major areas of safety concern. SMIS has also recently been update to include the facility to track recommendations so all information from the occurrence of the event to subsequent actions are contained in a single database.

RSSB have a section that carries out statistical risk analysis; they look at trends in historical incident data (based on SMIS data) including near miss data. They produce topic reports focusing on specific issues, and feed information into national initiative groups. They also publish an annual safety performance report on the website that includes detailed analysis of incidents and accidents.

Network Rail also carry out analysis of incidents and drive forward implementation of recommendations from enquiries etc.

Railway Group Standard (GO/RT3473) "Formal Inquiries, Formal Investigations and Local Investigations" applies across the industry. The purpose of the standard is to learn safety lessons without apportioning blame or liability; the purpose of investigations is to determine the immediate and underlying causes and make recommendations regarding safety. The formal inquiry system is in addition to 'normal' investigations carried out by duty holders themselves. It is a way of investigating incidents that have a 'system type' issue rather than relating to individual organisations; there are about 20-30 formal inquiries per year.

Formal inquiries and investigations must be chaired by someone independent of the parties involved; the standard also prohibits the involvement of legal representatives in the process. Parallel investigations (e.g. led by British Transport Police (BTP) or HSE) may feed information into the investigation. Formal recommendations are published, logged and tracked, and shared with the Railway Group. Findings are usually published within about 6 months, but this is dependent on the complexity of the incident and the access to evidence from other parallel investigations.

Learning from internal events

The standard (GO/RT3473) places obligations on railway group members to investigate accidents/incidents and share the information with others; individual companies are required to have their own processes in place, and they do this.

Learning from external events

Summaries of formal inquiries (including details of the event, what happened, the underlying causes, the lessons and recommendations) are published by RSSB on their website as part of the process of sharing the information with all companies. Each company in the railway group also receives a copy of the final report for formal inquiries. Recommendations will usually be targeted at certain companies, or for example could be targeted at all TOCs; if they are focussed at a specific TOC, it would be up to the other TOCs to examine the findings and see whether there is anything they can also learn. TOCs are better than they used to be at understanding and looking for the wider/transferable lessons.

RSSB work closely with ATOC, Network Rail and the infrastructure companies. They try to take a holistic approach by drawing recommendations together rather than focusing on individual recommendations. ATOC are not overly proactive in the learning lessons process, but they do take a leadership role, provide advice to their membership and help share information between TOCs; they are not a huge organisation. A lot of TOCs are also grouped under a few parent companies which helps encourage learning between the TOCs in a particular group.

Individual companies may also share with Network Rail, although there is not a very formal system. There is an infrastructure safety liaison group (including all major contractors) that meets every two months. Within these meetings, there are slots for learning lessons. Network Rail present a paper each time about performance, including details of formal enquiries and formal investigations. Part of the meeting is about more informal sharing of experiences in accidents. Typically directors of maintenance companies are present and talk candidly about any events that have occurred, giving details of what happened, what were the causes, what they are doing about it. This is a largely informal process but is very effective.

In the past there was little learning from other sectors; it was against the culture of the industry, but this is now improving. Some companies have non executive directors from other sectors which helps bring in other (non-rail) lessons. In addition, RSSB sometimes review other sector reports, and share any transferable lessons with the industry. However there is an ad hoc process

for deciding which external events to look at; a more formal process is being developed. RSSB also meet informally with contacts in companies in other high hazard industries (e.g. Air, Nuclear, Oil etc.) At monthly departmental heads meeting, recommendations from non-rail accident reports are considered and discussed to see whether there are any transferable lessons from other sectors and other countries. Particular companies do not tend to do this, but RSSB do on behalf of industry. It is part of RSSB's leadership role.

Health versus safety

The railway group standard (GO/RT3473) is all about safety rather than ill health. All companies have there own individual approaches. Management of ill health is fairly proactive within companies. Generally, learning and sharing of lessons from ill health incidents takes place within companies rather than between companies. There will be sharing within groups of companies, for example TOCs are within National Express Group. Some companies are also involved in other sectors, therefore there will be some cross sector sharing within a company (this also applies to safety).

Role of trade associations and other bodies

The unions are involved in the learning process and often provide an observer at formal inquiries.

Arrangements within HSE

RI have a mechanism for learning the lessons ourselves from how we investigate. They have a major accident debrief and feed information back to others in RI and HSE. A formal system for tracking recommendations via a database has also recently been established; this helps to define priorities. However, if there are a large number of recommendations, the workload associated with keeping on top of this will be significant.

There is an accident section who carry out analysis of RIDDOR data. This helps in a coarse way in identifying trends. Lessons from this broad statistical analysis are brought to the management board. There are also topic groups (e.g. SPAD (signals passed at danger) working group) where specific incidents and trends are looked at. This is probably the best/most comprehensive way. There are also groups for track worker safety and track maintenance.

In addition, lessons are also learnt from specific incidents, where they apply to the industry as a whole. For example there is a Network Rail corporate body who look at all reports and would highlight any patterns. Individual inspectors may also be proactive in raising an issue. RI also track recommendations made following enquiries, for example they ask for six monthly reports of progress.

Dissemination of information to the infrastructure controller (who controls 90% of the risk) is quite good. RI are tapped in to their own safety management regime via involvement in various committees. The lines of communication with TOCs are not as good. There is an Association of Train Operating Companies (ATOC), but it is a representative body rather than a body that will make decisions on behalf of industry. They may share information by getting each field team to speak to their TOCs. They also hold field team liaison meetings where specific issues can be raised and shared.

There is no overall system within RI for learning from other sectors or internationally, but there are good links on particular topics, e.g. risk assessment. RI used to be a member of ILGRA (the Interdepartmental Group on Risk Assessment) before it ceased.

Barriers to learning

One of the main barriers to learning is the volume of information; how does a specific company distill this down to key messages for them? If too much information is available, key learning lessons may be missed as the information is ignored.

Information overload and repeated exposure to safety messages may interfere with the effectiveness of the messages. For example Safety Net Videos are generated every 2 months (news headline style) aimed at the wide workforce, and are used in safety briefings and team meetings. They recount recent accidents with video and interviews. This is a very good medium for getting lessons across, but if people see such things too often they can have less impact.

The fragmentation of the industry is also a barrier to learning. There are problems with lack of corporate memory as well as elements of mistrust between all the players, with lots of financial claim and counter-claim. RSSB should play a key role in driving lessons forward and be more proactive.

What could be improved?

Use of IT within HSE could be improved. RI is geographically dispersed and therefore good IT systems are essential for effective communications. The FOCUS database is not very user friendly; it is hoped that COIN will be an improvement.

Related to this is the issue of information management, which tends to be given a low priority. It is important for people to keep an eye on things, to scan the horizon and share the information about specific issues, but good information management systems are essential to facilitate this sharing.

Ways for dealing with the volume of information in a more focused way are needed. HSE could do more in bringing threads together; there are many intervention plans where items have been covered and questions answered, but common threads are often not brought together. Planning is also often carried out discretely for each 12 month period and there is a need for more continuity.

The quality of industry's ability to identify lessons and their investigation skills could also be improved; there is a need to improve consideration of root causes rather than just focussing on engineering problems; there is a lack of competence in the industry in this area.

The community has to decide whether they want to learn safety lessons as quickly as possible or whether they want to find someone to blame. This is a big issue.

A major challenge is how to package the safety lesson in such a way that it gets to the target group and influences them to take the appropriate action to deal with the lesson. Different messages and ways of communicating them might be needed for different stakeholders. Information needs to be targeted appropriately for each audience.

7.4.14   Small business sector

Overview

Small firms (that is, those employing less than 50 people) represent around 99% of all UK businesses (HSC, 1999) and employ around half of the UK workforce. The profile of this sector

of industry is consequently very broad; small businesses can be found across the entire range of industry sectors, including retail, wholesale and motor trades, business and financial services, manufacturing, agriculture, construction, and hotels and restaurants.

The Federation of Small Businesses (FSB) recently conducted a survey of 18,655 small businesses that provides some further insights into the sector. One quarter of survey respondents operate from home and the majority serve local markets. Almost half of all respondents have been in business for less than 5 years and respondents were generally ambitious for future growth. Internet access is growing, with more than 80% of respondents having internet access, although broadband access is a problem in rural areas.

Learning lessons processes and systems within the industry

Small businesses generally do not have formal learning lessons processes. The majority of small businesses will not do anything until something happens to them, but they will take sensible precautions. Often they are very small, family owned businesses, so they care about their workforce. It is not in their interest to expose the workforce to danger, although they can't keep in touch with everything. Policy and compliance with law is very important, but there are unlikely to be any formal written policies.

Some small businesses will have more formal systems (e.g. having health and safety policies and holding weekly health and safety meetings that are documented) but the majority are less formal.

Learning from internal events

Small businesses will learn from incidents. The main way is that something will happen which leads to higher insurance or a worker that is off sick or HSE/LA involvement (e.g. a prosecution).

Learning from external events

Small businesses will also learn from external events in an ad hoc way. They may network with other sector members (informal network), and review whether incidents that have occurred could happen to them. Small businesses learn from others in the sector, especially trades and specialist trade associations, who will raise issues.

Health versus safety

In many small businesses, occupational ill health is not recognised as part of a health and safety policy. Small businesses often have a less formal, 'family atmosphere'. An occupational link is often not made in cases of ill health although there are good communications due to the family membership.

Role of trade associations and other bodies

The FSB is a representative body for small businesses that currently has around 185,000 members throughout the UK. The member companies employ around 1.25 million people. The FSB provide information to members that includes guidance on health and safety, including encouraging the use of the HSE website. Information is also shared informally with other trade associations who they get together with to campaign. Best practice guides from members are encouraged and supported, but it is not part of the FSB's role to monitor practices or facilitate the sharing of information on incidents etc.; their members would not want this.

The FSB keep members aware of legislation and try and introduce good practice such as health and safety tools and good practice on the website. They also have a bimonthly magazine to highlight issues and a health and safety helpline for advice that receives around 10 calls each week.

Barriers to learning

Key barriers to learning for small businesses are levels of compliance with regulations and lack of awareness. Health and safety is seen as a burden on business rather than a benefit and therefore there is a reluctance to take on extra. An increase in regulations places the onus entirely on employers. There are particular concerns in small businesses regarding where the duty of care ends, for example when do employers stop being responsible for an employee's health. Rehabilitation issues are also particularly problematic.

What could be improved?

Highlighting practical best practice scenarios would be useful guidance for small businesses; best practice information is currently received informally and is hard to share. Within this sector there is a view that HSE would be best placed to disseminate such information.

7.4.15   Utilities sector

Overview

The utilities sector covers the water, domestic gas safety, gas transmission, electricity, telecommunications and water jetting industries. Most companies in the sector are large multinational firms, however, more smaller firms are beginning to appear following the deregulation of some of the sector's industries. The utilities world is rapidly changing as the structure of the industry changes and newer fuel sources (e.g. wind) are considered.

The electricity industry is primarily made up of generators (power stations), transmitters, distributors and suppliers (who buy and sell the product to customers). The focus of this description is on distributors in the electricity industry.

Learning lessons processes and systems within the industry

Large employers do have policies for learning lessons and will generally have a safety management system which includes procedures for accident reporting and investigation. Traditionally the industry has had a rigid structure for accident investigation with panels of inquiry. The companies produce accident reports and are usually happy to share information with others in the sector.

Learning from internal events

Traditionally, companies in this sector tend to be large organisations, and as a result they usually have formalised accident investigation systems. They will make the decision on how to manage the accident investigation and all procedures invite the Trade Unions to be involved. The investigation will include root cause analysis and this leads to an action plan which as a minimum will communicate to all staff the incident details. Designated responsibilities and close out procedures are often included and outstanding actions may be reported to the board. Some companies will have a database of incidents which will include completion dates for actions and this is audited to check on their implementation.

Some companies use safety alerts, depending on the type of accident, which may be issued as soon as the accident is reported to raise awareness. For certain types of accident this may also lead to an operational restriction while the investigation is underway. Other communiqués may be through toolbox talks.

Companies do carry out accident analysis and trend analysis for all incidents and some near misses. If a near miss has been identified with serious implications the company would investigate it in the same way as a serious accident.

Learning from external events

Distribution companies in the electricity industry are covered by an industry representative body, the Energy Networks Association (ENA). Following an incident the company concerned produces a summary report which may be forwarded to the ENA and other distribution companies. It is the decision of the individual company who they inform, but if the incident is serious they will tell others through the ENA. The ENA provide a contact number for other member companies to phone the company, where the accident occurred, directly. Following the investigation the ENA use committees to share information and other member companies can then find out the details of what happened. Follow up bulletins are issued as necessary and occasionally companies will give 30 mins talk about what went wrong. If the incident had implications for the generation side, the ENA would let their generation counterparts know and this is reciprocated.

They do try and learn and share information from outside their own company but generally learning only takes place within the sector. Any learning from other industries that occurs is through a process that is fairly informal.

Companies in the electricity industry are members of National HESAC (health and safety advisory committee) which has reps from lots of other industries. They also have sub-committees but it is not clear how well the information is fed back to individual companies.

Some companies are starting to benchmark against other sectors, e.g. petrochemical, and others are owned by US companies and so have internal systems for learning from mother companies.

Health versus safety

The main difference with health is that companies don't think they have a good benchmark on occupational health. Electricity and water are looking at occupational health data collection, they need to learn areas where they need to put more effort in. If they were concerned about a particular product, information would be shared with the rest of industry. However, they don't tend to get involved with incident investigation for health.

Confidentiality makes ill health different to safety issues. The ENA are in the process of thinking about whether it's a line manager, HR or occupational nurse issue. It's very rare for a line manager not to think that safety is their responsibility but it's a very different situation for ill health.

Role of trade associations and other bodies

The ENA have an accident database which is similar to HSEs. Member companies report all of their lost time accidents (think virtually 100% are reported). The ENA use this information to produce two reports, one for an initiative that tracks progress against revitalising health and

safety targets and calculates working days lost. The other is an annual health and safety report which compares accident performance of member companies, this is not anonymised. They also produce national charts on accident causation and trends.

The ENA have another database, the National Equipment Defects Reporting System, which is not restricted to ENA members. It is used by generators and other UK operators of electricity networks. All failures, fires and explosions are reported to the system. Once a report is inputted, an e-mail is generated automatically and sent to all companies who have access to the database. Dangerous incident notifications and special operating procedures on equipment are also reported.

In parallel to the companies' incident report, HSE's utilities sector contacts the field investigator to see if there are any national implications and then disseminates the information to the rest of the industry. However, there are often there are striking differences between what HSE and the company disseminate in their reports.

Arrangements within HSE

The sector obtains yearly data on the industry and reviews it to see if there are any overall trends/ lessons to be learned. They would then tell the industry if any major problems/issues were found.

Fatalities are monitored as they happen as the sector is usually copied into the accident reports. HSE will then disseminate lessons learned straight away to rest of industry, if necessary, but this will become more difficult as smaller players get involved in the industry. Sectors are trying to find out what's going on in their industry at any point in time and targeting efforts as best they can but because of the pace of change in the industry, the following year things could be completely different.

The role of the sector is to try and make sure inspectors know what is going on in the industry and of areas of most concern. Inspectors only tend to feed back to the sector in a negative sense, contact is from new inspectors who are trying to grasp the basics and learn about the industry. In the past, inspectors had a high level of expertise in the industry and would report back to the sector on specific issues that had lessons to be learned.

The sector covers very different industries and at sector meetings, each area head goes through issues of relevance to other industries. However, there is no formal cross-sector process now that the head of sector forum has been disbanded. Policy people can help the cross sector learning through the use of examples from other industries.

One important aspect within the sector is new technology and they have to look at information that is available worldwide. There's no formal process but when have a problem you go out and learn about it. They get information about seminars with international flavour and HSE often attend. The sector tries to identify future problems by horizon scanning. This is generally in areas where the UK is thinking of taking up new initiatives quicker than the rest of the world. If there are any lessons to be learned, information will be disseminated by the sector to industry and other government departments (for H&S issues).

Barriers to learning

There is an internal debate, within the ENA, over internal accident investigation reports and investigations running in parallel with HSE investigations. In the past internal company reports have been used against the company by prosecutors. Consequently this has meant that reports

tend not be open and honest in case they are used against the company in court. The process needs to encourage openness but prosecution goes against this and needs to be separate. Companies still produce reports but they are wary of what they share. Now reports are factual and contain no recommendations and companies are very cautions. The ENA have health and safety management courses each year and lawyers give advice on how to prepare internal reports. But even within the legal profession opinions differ over what should be included in the report.

The utilities sector see the structure of the industry as one of the major difficulties in communicating lessons learned but this is beyond HSE's control. It's even difficult to identify the industry, quite often they don't know what is happening at the ground level and inspectors are too busy doing reactive work to find out.

What could be improved?

HSE have got a legal duty to investigate accidents and to take legal action but it needs to be recognised that through this process there may be conflicts with the learning lessons process.

The sector are happy to see examples of different approaches that have been used with stakeholders that have been effective for learning lessons. They won't object to opportunities to discuss the process with others, they all want to learn what works from the rest of HSE. But, set policies for rapidly changing industries are a waste of time. It's also a waste of training if you take away the chance to use professional judgement on decisions.

The sector feel that they need more time to do things, there is a large resource limitation.

The sector would like HSE to be in a position to be able to provide information sooner on accidents. HSE have got slower at providing information and tend to say that they can't inform industry because investigations are ongoing.

7.5   APPENDIX E – HSE ORGANISATIONAL CHART

The following sections reflect HSE's structure when the interviews for this project were carried out.

7.5.1   HSE Top Structure

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                          ┌─────────────────────────┐
                          │  Director General (DG)   │
                          └─────────────────────────┘
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| Deputy DG Operations | Deputy DG Policy | Director Chief Scientist | Director Resources | Chief Executive HSL |

| Director FOD | Chief Inspector NSD | Director Strategy | Director Strategic Programmes |

| Director HID | | | Director Policy Programmes |

7.5.2   Field Operations Directorate (FOD)

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                        ┌─────────────────┐
                        │   FOD Director   │
                        └────────┬─────────┘
        ┌────────────────┬───────┴────────┬────────────────┐
┌───────────────┐ ┌─────────────┐ ┌─────────────┐ ┌─────────────┐
│ Corporate Health│ │ Construction│ │   Regions   │ │   Sectors   │
│ Specialist Division│ └───────────┘ └──────┬──────┘ └─────────────┘
└───────────────┘                           │
                    ┌─────────────┐   ┌──────────────┐
                    │  HQ and NW  ├───┤   Scotland   │
                    └─────────────┘   └──────────────┘
                    ┌─────────────┐   ┌──────────────────┐
                    │  Midlands   ├───┤ Yorkshire and NE │
                    └─────────────┘   └──────────────────┘
                    ┌─────────────┐   ┌──────────────────┐
                    │   London    ├───┤ Wales and West   │
                    └─────────────┘   └──────────────────┘
                    ┌─────────────┐
                    │ East and SE ├───
                    └─────────────┘
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7.5.3   FOD Sectors

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                      ┌─────────────────────┐
                      │     FOD Director     │
                      └──────────┬──────────┘
         ┌─────────────┬─────────┼─────────┬─────────────┐
   ┌───────────┐ ┌───────────┐ ┌───────────┐ ┌───────────┐ ┌───────────┐
   │Manufacturing│ │Public     │ │Agriculture│ │Construction│ │  CACTUS   │
   │           │ │Services   │ │and Food   │ │Sector     │ │           │
   └───────────┘ └───────────┘ └───────────┘ └───────────┘ └───────────┘
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CACTUS – Commercial and Consumer Services, Transportation and Utilities

The sector groups are also complemented by 2 cross-sectoral units, the Safety Unit and Health Unit, which deal with safety issues and occupational health and environment issues, respectively, relevant to all industries.

7.5.4　　　Hazardous Installations Directorate (HID)

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                              ┌─────────────────┐
                              │   Head of HID   │
                              └────────┬────────┘
        ┌──────────────┬──────────────┼──────────────┐
┌───────────────┐ ┌───────────┐ ┌───────────┐ ┌────────────────┐
│    HID SI     │ │ Offshore  │ │  HID HQ   │ │     HID CI     │
│  Specialised  │ │           │ │           │ │    Chemical    │
│   Industry    │ │           │ │           │ │    Industry    │
└───────────────┘ └───────────┘ └───────────┘ └────────────────┘
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HID SI Specialised Industry		Offshore		HID HQ	HID CI Chemical Industry	
Process Safety CTG	Biological Agents	OSD 1	OSD 2	Human Factors Pool	HID CI 1 Scotland	HID CI 2 Wales and West
Explosives	Mines	OSD 3	OSD 4	Human Factors Specialists	HID CI 3 Eastern England	HID CI 4 Strategy
Gas and Pipelines		OSD 5	Occupational Psychology Pool		HID CI 5 Risk assessment and Process integrity	HID CI 6 Process Safety pool

7.5.5   Other HSE Specialists

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                        ┌─────────────────────┐
                        │      HSE Board      │
                        └──────────┬──────────┘
                 ┌─────────────────┴──────────────────┐
     ┌───────────────────────────────┐    ┌──────────────────────────────┐
     │ Corporate Science and         │    │ Nuclear Safety Directorate   │
     │ Analytical Services (COSAS)    │    │ (NSD)                        │
     └───────────────┬───────────────┘    └───────────────┬──────────────┘
        ┌────────────┼────────────┐              ┌─────────┴──────────┐
  ┌──────────┐ ┌──────────┐ ┌──────────┐  ┌──────────────┐ ┌──────────────┐
  │Statistics│ │  Social  │ │ Economic │  │ Electrical   │ │ Rest of NSD  │
  │          │ │  Science │ │ Advisors │  │ and Control  │ │ Approx 150   │
  │          │ │   Unit   │ │   Unit   │  │  Systems     │ │ Inspectors   │
  └──────────┘ └──────────┘ └──────────┘  └──────────────┘ └──────────────┘
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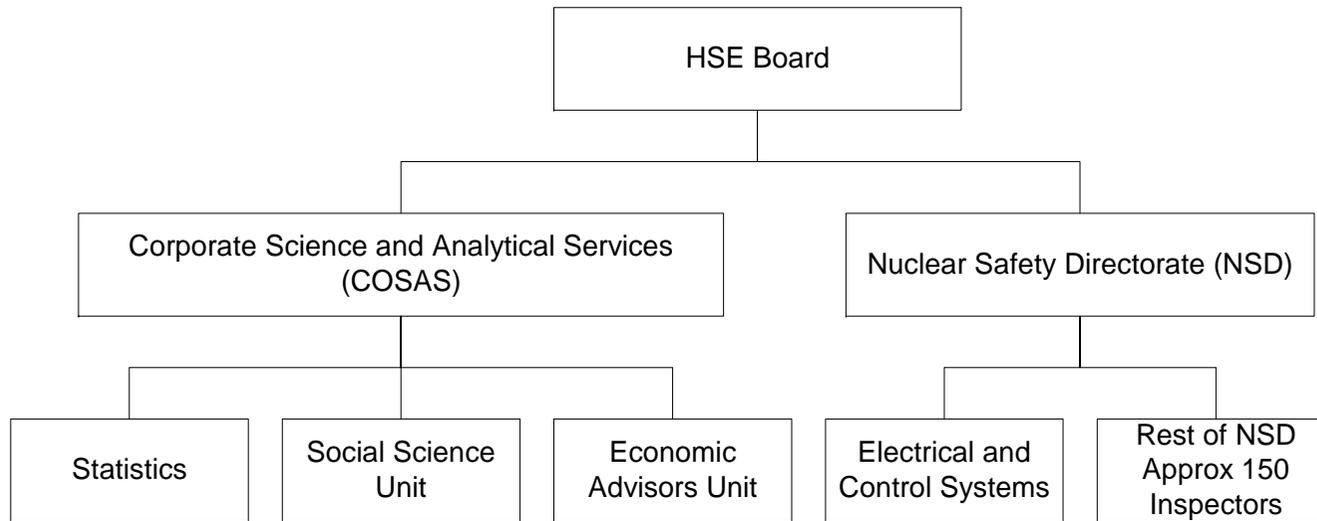
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9   GLOSSARY

AAIB	Air Accident Investigation Branch
AFAG	Arboriculture and Forestry Advisory Group
AIAC	Agriculture Industry Advisory Committee
ALARP	As Low As Reasonably Practicable
ASAG	Agriculture Safety Advisory Group
ATOC	Association of Train Operating Companies
BAGMA	British Agriculture and Garden Machinery Association
BASIS	British Airways Safety Information System
BE	British Energy
BTP	British Transport Police
CAA	Civil Aviation Authority
CACTUS	Commercial and Consumer Services, Transportation and Utilities Sector
CBI	Confederation of British Industries
CDOIF	Chemical and Downstream Oil Industries Forum
CDS	Communications Delivery Service
CDTU	Construction Division Technical Unit
CEN	Comite Europeen de Normalisation
CHIRP	UK Confidential Human Factors Incident Reporting System
CIEH	Chartered Institute of Environmental Health
CIS	Common Information System
COIN	Corporate Operational Information System
COMAH	The Control of Major Accident Hazards Regulations
CONIAC	Construction Industry Advisory Committee
COSAS	Corporate Science and Analytical Services Directorate
CTG	Corporate Topic Group
DEFRA	Department for the Environment, Food and Rural Affairs
DoE	US Department of Energy
E/E/PE	Electrical, Electronic or Programmable Electronic
EASA	European Aviation Safety Agency
ECFA	Events and Causal Factors Analysis
EDRM	Electronic Documents and Records Management
EEF	Employers Engineering Federation
EHO	Environmental Health Officer
ENA	Energy Networks Association
FC	Forestry Commission
FLT	Fork Lift Truck
FOCUS	Field Operations Computer System
FOD	Field Operations Directorate
FSB	Federation of Small Businesses
GAAG	Glasgow Accident Analysis Group
HELA	HSE/LA Enforcement Liaison Committee
HESAC	(National) Health and Safety Advisory Committee
HIAG	Health in Agriculture Group
HID	Hazardous Installations Directorate
HSC	Health and Safety Commission
IAC	Industry Advisory Committee
IAEA	International Atomic Energy Authority
ICAO	International Civil Aviation Organisation

ICC	Incident Contact Centre
ICE	Institution of Civil Engineers
IChemE	Institution of Chemical Engineers
IGT	International Gas Transporters
ILGRA	Interdepartmental Group on Risk Assessment
INRA	International Nuclear Regulator Association
IOSH	Institution of Occupational Health and Safety
IRS	Incident Reporting Scheme
ISO	International Standards Organisation
LA	Local Authority
LACORS	Local Authorities Coordinators Regulatory Services
LAPS	Lead Authority Partnership Schemes
LAU	Local Authority Unit
LUL	London Underground Limited
MAPP	Major Accident Prevention Plan
MARCODE	Database of Investigated Accidents (originally Marches Code)
MARS	Major Accident Reporting System
MCG	Major Contractors Group
MHIDAS	Major Accident Incident Data Service
MHSW	The Management of Health and Safety at Work Regulations
MSD	Musculo-Skeletal Disorder
NEA	Nuclear Energy Authority
NFIT	National Fairground Inspection Team
NFU	National Farmers Union
NHS	National Health Service
NPSA	National Patient Safety Association
NRLS	National Reporting Learning System
NSD	Nuclear Safety Directorate
OECD	Organisation for Economic Cooperation and Development
OG	Operations Group
OGD	Other Government Departments
OGP	Oil and Gas Producers
OPIP	Operational Process Improvement Project
ORR	Office of Rail Regulation
OSD	Offshore Safety Directorate
OSHA	US Occupational Safety and Health Administration
OWAM	Organisation with a Memory
PCT	Primary Care Trust
PPE	Personal Protective Equipment
RAIB	Rail Accident Investigation Branch
RI	Railway Inspectorate
RIDDOR	The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
RoSPA	Royal Society for the Prevention of Accidents
RSG	Regional Specialist Group
RSSB	Rail Safety and Standards Board
SAD	Safety Awareness Day
SADIE	Safety Alert Data and Information Exchange
SELLS	Society for Effective Lessons Learning Sharing
SES	Safety and Enforcement Statistics
SHAD	Safety and Health Awareness Day

SIC	Standard Industry Classification
SIM	Sector Information Minute
SME	Small and Medium Enterprise
SMIS	Safety Management Information System
SPAD	Signal Passed at Danger
SWA	Scotch Whisky Association
TGWU	Transport and General Workers Union
TOC	Train Operating Company
TU	Trades Union
TUC	Trades Union Congress
UKOOA	UK Offshore Operators Association
UKOPA	UK Onshore Pipeline Association
USDAW	Union of Shop, Distributive and Allied Workers
WANO	World Association of Nuclear Operators
WENRA	Western European Nuclear Operators Association