

Fire and Explosion - General

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FIRE, EXPLOSION AND RELATED INCIDENTS IN 1998/1999 & 1999/2000

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Introduction

1 This Discipline Information Note introduces the paper and Appendix which were prepared for the Advisory Committee on Dangerous Substances.

2 It informs Process Safety specialist inspectors of accidents and dangerous occurrences reported to HSE under regulation 3 of the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR).

Issue

3 The presentation, in the appendix to this paper, of a review of fire, explosion and related incidents in 1998/1999 and 1999/2000. An outline of the benefits and omissions of the review in the paper itself.

Timing

4 The statistics in this review cover the period 1 April 1998 to 31 March 2000. It is intended to publish the review externally in the scientific literature in 2002.

Recommendation

5 To note the paper and appendix and agree that they do not warrant further action by the committee.

6 To agree that the review should be published externally in the scientific literature.

7 To agree the need to evaluate the possibility of providing a more comprehensive data set in future years by obtaining data on accidents and dangerous occurrences reported under the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR) where any part of HSE, local authorities and other government departments are responsible for enforcement.

Background

Source of data

8 The data in this paper and appendix include accidents and dangerous occurrences reported to HSE under regulation 3 RIDDOR. The incidents involved fires, explosions and unignited releases of flammable materials where the Field Operations Directorate (FOD) and the Chemical and Hazardous Installation Division (CHID) were responsible for enforcement.

9 The review does not include incident data from reports made under RIDDOR to other HSE directorates or divisions (which we believe to be very small in number), local authorities and other government departments. It does not include those that arose from the supply and use of piped gas at domestic premises reported under regulation 6 of RIDDOR or those involving the manufacture, keeping and carriage of explosives reported to HSE under section 63 of the Explosives Act 1875 and regulation 26 of the Carriage of Explosives by Road Regulations 1996, as amended.

10 In spite of these omissions, the review provides a useful summary of incidents over a wide range of industries and processes. We feel that there is sufficient information to identify most trends and areas which need early or longer term attention. The analysis of incident data has led to various guidance documents being issued and initiatives being undertaken since the publication of the last ACDS paper, these are mentioned in the appendix text and referenced at the end.

11 The data was derived from entries identified on HSE's FOCUS database, which included reports and inspectors' summaries of investigated incidents. For the period under review FOCUS was FOD and CHID's operational information database. For investigated incidents all the required information was downloaded but for non-investigated incidents a copy of the F2508 RIDDOR report had to be obtained from the operational areas.

Changes in data sources and reporting

12 In January 2000 CHID became part of the Hazardous Installations Directorate (HID). The operational parts of CHID became Land Division (LD) units 1 to 4. For brevity CHID is referred to throughout the paper and appendix. Since October 2000 HID LD1-4's operational data has been stored in a separate database, the Common Information System (CIS). HSE are currently progressing a project to search and download data from CIS into the fire and explosion incidents database (FIREX).

13 In April 2001 the Incident Contact Centre opened, allowing RIDDOR incidents to be reported in a variety of ways. This has also led to changes in the incident information on FOCUS. The major change is the electronic recording of the descriptive part of the report, there is a project planned to download this information into FIREX. This will reduce unit resource requirements.

Summary of data in the appendix

14 The annual variations in the number of incidents reported to HSE are complex and include changes in the pattern of employment and changes in economic activity. The number of fatalities caused by fire and explosion each year is relatively small and any minor change could significantly affect any apparent trend. The number of injuries continues to fall compared to previous years.

15 The total number of incidents in this period (1998-2000) has increased by about one-third from 1996-1998. The overall ranking of the different categories remains similar to earlier reports, except for the continued increase in the number of incidents involving flammable gases. The increase in the total number of incidents is almost exclusively due to a doubling of reports concerning damage to gas pipelines. From the information available it has not been possible to determine whether there is continued uncertainty in just what is or is not reportable, whether minor damage and releases are being reported for some reason or whether there has been an actual increase in the number of truly reportable incidents of this type. HSE will continue to monitor this situation.

16 In 1998/1999 13 incidents could not be coded due to lack of information, in 1999/2000 this figure was over 90. It is probable that most of the uncoded 1999/2000 incidents would have involved piped natural gas as they were reported by a gas transporter, but they have not been included as such. Attempts have been made to obtain the F2508 RIDDOR report forms from contacts in FOD and CHID area offices but they have been unable to trace them. It is possible that gas related incidents may now be stored elsewhere and TD are currently investigating this information can be obtained.

Category	% of total incidents (no. of fatalities)			
	1998/1999		1999/2000	
Flammable solids	12	(1)	13	(3)
Flammable liquids	25	(5)	17	(5)
LPG	3	(0)	3	(0)
Flammable gases	53	(1)	53	(1)
Exothermic reactions	3	(0)	4	(2)
Miscellaneous	3	(1)	3	(0)
Not coded	1	(0)	8	(0)

17 In common with previous reviews, many of the incidents relate to the basic misuse of flammable materials and equipment where technological solutions are rarely the answer. Increased training, supervision and care would reduce the number and severity of incidents. Many of the causes of incidents involving flammable materials and the precautions to prevent them are already documented in existing guidance. This review outlines the continuing effort that has been placed on revising and developing guidance and the initiatives that are taking place to ensure that the risks are easily understood by those creating or affected by the hazards.

Argument

18 In this review the data set consists of incidents reported to FOD and CHID, together these two HSE directorates accounted for three-quarters of all RIDDOR reported injuries and 40% of all RIDDOR reported dangerous occurrences in 1998/1999 and 1999/2000. Most of the other injuries are from non-HSE enforced premises whilst the majority of dangerous occurrences occur in the railway industry.

19 Since similar fire, explosion and related incidents can occur in various types of establishment, it would make our data more robust to include RIDDOR incidents where all HSE directorates, local authorities and other government departments are responsible for enforcement. It may improve our knowledge to have details of these incidents and to take the information into account when writing generic guidance.

20 We need to evaluate the benefits of including this information, e.g. potential numbers and types of incidents, against the resource implications of providing a more comprehensive data set, which would depend on the type and format of data currently available from the enforcing body and the ease of extracting and further coding the data if necessary. Consultation with the enforcing bodies will be required.

Consultation

21 This paper uses data from FIREX and overall statistics from the Safety and Enforcement Statistics Unit of HSE's Strategy and Analytical Support Directorate.

Presentation

22 This paper and appendix will be issued internally as a TD5 Discipline Information Note on the HSE Intranet with a target audience of Process Safety specialists. Regulatory inspectors may also find it useful.

23 The appendix contents are suitable for external publication in scientific literature with a target audience of management, safety and engineering personnel.

24 The review itself follows a similar format to the previous reviews in the series. The data for the two years under review are summarised in Tables 1 and 2 and commented upon in the text. Descriptions and comments on notable incidents or those where lessons may be learnt are provided. Table 3 presents data for the ten years from April 1990 to March 2000 (the years April 1990 to March 1996 were reported under RIDDOR 1985). Significant trends are mentioned in the text.

Costs and Benefits

25 There are no costs associated with this paper and appendix, they provides a useful summary of incidents over a wide range of industries and processes.

Financial/Resource Implications for HSE

26 The data processing and production of this paper and appendix comes from existing resources within TD5, as would any evaluation of increasing the data set.

Environmental Implications

27 n/a.

Other Implications

28 n/a.

Action

29 Issue this paper internally as a TD5 Discipline Information Note.

30 Submit the review for publication externally in scientific literature.

31 Evaluate the possibility of providing a more comprehensive data set.

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