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Report of Survey on the Use of Safety Documents in the Control of Major Accident Hazards

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No. 17

Report of Survey on the Use of Safety Documents in the Control of Major Accident Hazards

Environment Directorate

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Paris, 2008

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The Inter-Organisation Programme for the Sound Management of Chemicals (IOMC) was established in 1995 following recommendations made by the 1992 UN Conference on Environment and Development to strengthen co-operation and increase international co-ordination in the field of chemical safety. The participating organisations are FAO, ILO, OECD, UNEP, UNIDO, UNITAR and WHO. The World Bank and UNDP are observers. The purpose of the IOMC is to promote co-ordination of the policies and activities pursued by the Participating Organisations, jointly or separately, to achieve the sound management of chemicals in relation to human health and the environment.

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FOREWORD

This report presents the results of a survey on the use of safety documents in the control of major accident hazards. It is based on responses to a questionnaire circulated to OECD member countries in 2006. The report has been prepared by *Shirley Higgins* and *Timothy Beals* from the Health and Safety Executive (HSE), United Kingdom.

In the EU, the Seveso II Directive requires operators of certain hazardous sites to produce a document known as a 'safety report'. Likewise the US EPA has developed, for industry operators, guidance on risk management programs that contain all the elements related to prevention and safety. Equivalent documents on prevention programmes and the safety information are generally produced in other OECD countries. The Working Group on Chemical Accidents (WGCA) decided to explore the purposes of such documents and look at how they are used in OECD countries.

In October 2005 the 15th WGCA Meeting agreed to include a project on "The Use of Safety Reports or Equivalent Documents in the Control of Major Accident Hazards" in the 2006 – 2008 work programme. The aim of the project is to review the different approaches taken throughout OECD countries and to gather information to: (i) ascertain whether all member countries use safety documents; (ii) compare the purposes of the safety documents within the OECD; (iii) look at how these documents demonstrate that safety measures are in place, and how they advance safety; (iv) share experience and knowledge of how business, national and local authorities and others use the information in the safety documents; and (v) assist in the development of international best practices.

The United Kingdom offered to take the lead of the project and proposed an approach for the work. The activity started in November 2005 with the establishment of a *Project Committee*[1] charged with carrying out the work. It was led by the UK Health and Safety Executive (HSE) and composed of representatives from France, Germany, Italy, Korea, the Netherlands, the United Kingdom, the United States, the EC, industry and the Secretariat.

The Project Committee identified the key information to be sought and developed a **questionnaire** to collect this information. The survey questionnaire was circulated to member countries in March – July 2006. Responses were received from 22 countries. The high number of responses received shows interest in this project which exceeded expectations.

The report of the survey concludes that the majority of OECD countries operate very similar systems for the control of major accident hazards. The safety documents project has provided a useful overview of the systems in operation in various member countries. The authors however recognise that it is difficult to draw detailed conclusions about the differences or similarities, and a number of areas require further investigation. To aid in the development of international best practice, the report suggests undertaking a

1. The members of the Project Committee for the safety documents project were: *Timothy Beals* (HSE, UK), Chair; *Sandrine Descourrière/Régis Farre*t (INERIS, France); *Wolfgang Schloesinger* (LUA-NRW, Germany); Paolo Bragatto (ISPESL, Italy); *Hyuck-Myun Kwon* (KOSHA, Korea); *Robbert Plarina* (MINVROM, the Netherlands); *Shirley Higgins* (HSE, UK); *Kim Jennings* (EPA, US); *Luciano Fabbri* (EC JRC); *Richard Gowland* (ICHEME); and *Marie-Chantal Huet* (OECD Secretariat).

further project (or projects) to look at the following issues in more detail: (i) content of safety documents; (ii) meaning of "demonstration"; (iii) time taken to assess safety documents; and (iv) use of safety documents by operators.

The WGCA recommended that this report be forwarded to the Joint Meeting of the Chemical Committee and Working Party on Chemicals, Pesticides and Biotechnology, for consideration as an OECD publication. The Joint Meeting agreed that it should be made available to the public.

This document is published under the responsibility of the Joint Meeting of the Chemicals Group and Management Committee of the Special Programme on the Control of Chemicals of the OECD.

A. INTRODUCTION

In October 2005 the 15th Meeting of the Working Group on Chemical Accidents agreed to include a project on "The Use of Safety Reports or Equivalent Documents in the Control of Major Accident Hazards" in the 2006 – 2008 work programme. The aim of the project was to review the different approaches taken throughout OECD countries and to gather information to:

i. ascertain whether all member countries use safety documents;
ii. compare the purposes of the safety documents within the OECD;
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v. assist in the development of international best practices.

The United Kingdom offered to take the lead and proposed an approach for the work. A Project Committee was established in November 2005 to carry out the work, with representatives from France, Germany, Italy, Korea, the Netherlands, the UK (Project Co-ordinator), the US, the EC and industry. The Project Committee identified the key information to be sought and devised a structured questionnaire, which was circulated to member countries in March 2006, with responses required by 1 July 2006. The questionnaire investigated:

i. whether all OECD member countries use safety documents, and if so, how those documents compare between different countries;
ii. what sort of guidance member countries provide to operators to assist them with the preparation, review and revision of the safety documents;
iii. how member countries approach assessment of safety documents;
iv. How member countries define the purposes of safety documents and what they consider to be adequate demonstrations that those purposes have been met;
v. how regulators and operators use them once written; and
vi. how operators keep the public informed.

Interest in this project exceeded expectations, with completed questionnaires being submitted by 22 member countries, namely:

Australia	Mexico
Belgium	Netherlands
Canada	Norway
Czech Republic	Poland
Finland	Slovakia
France	Slovenia
Germany	Spain
Iceland	Sweden
Italy	Turkey
Japan	United Kingdom
Korea	United States

B. DETAILED SUMMARY OF ANSWERS TO QUESTIONS

1. Legislative Background

Of the 22 member countries who submitted responses to the questionnaire, 15 implement the Seveso II Directive. The number of recognised major hazard sites varies widely between respondent countries, from just 11 in Iceland to approximately 14000 in the US.

With the exception of Turkey and Japan, all countries have legislation that requires operators of major hazard sites to produce safety documents. With one exception, this legislation is intended to protect persons and the environment. In Australia (Victoria)[2] legislation covers people and property but does not include the environment. Mexican legislation is aimed at environmental protection, but as they consider population to be a major element of the environment it also has the effect of providing protection to persons. Canadian legislation is also environmental in nature, but an environmental emergency is defined as one that would be likely to cause harm to the environment or constitute a danger to human life or health.

Turkey, which started negotiations towards membership of the European Union in October 2005, is in the process of taking steps to implement the Seveso II Directive but does not presently have well developed legislation relating to the control of major accident hazards involving dangerous substances. Japan does not have specific legislation focussing on the control of chemical accidents but has provisions scattered throughout a range of legislation that it considers cover much of the scope of the Seveso II Directive. However, in the absence of a specific regulatory regime there is no requirement to produce safety documents of the type covered by this project.

In the majority of countries the regulation of major hazard sites is controlled at central/federal government level, though often with the involvement of regional/state government. In a small number of cases (most notably Australia (Victoria) and Belgium, where each state/region has its own legislation), regulation is the responsibility of regional/state government. Local government tends to be involved mainly in land use planning and emergency planning activities. The main exception to this is France, where enforcement of legislation, acceptance of safety documents and licensing of hazardous industrial activities is all within the remit of the local authorities. Japan also reports that each of the legal provisions relating to the control of major hazards allocates responsibilities to both central and local government. Poland is unique in reporting that responsibility for regulation of hazardous sites rests with the State Fire Service.

In countries subject to the Seveso II Directive, application of the legislation is dependent on the presence of qualifying quantities of specified dangerous substances (either individually named substances or substances belonging to a number of generic categories), lists of which are included at Annex I of the Directive. There is no requirement for there to be an 'industrial activity' as there is no distinction between 'process' and 'storage'.

The application of legislation to major hazard sites in non-Seveso countries that responded to the questionnaire is largely determined in much the same way, based on the presence of qualifying quantities of specified dangerous substances, though the number of substances specified varies considerably between countries. In Korea, there is a list of 19 specified substances plus 2 generic categories of substance, but application of the legislation is limited to 6 business categories/installation types with more than threshold quantities of the substances listed. In Japan, where there is no specific regulatory regime, there is no such

[2] Each state in Australia has separate legislation. The questionnaire was completed by a representative from the state of Victoria.

list of substances and the basis for the application of the different pieces of legislation varies according to the nature of the hazards.

2. Safety Documentation

(a) Do the operators of ALL establishments to which the legislation applies have to produce safety documents? If not, what decides whether safety documents have to be produced?

In countries subject to the Seveso II Directive, sites to which the legislation applies are divided into two groups: upper tier and lower tier. Full safety documents (safety reports) are required only for upper tier establishments (though in France, sites are divided into 3 categories and safety reports are required by sites in the categories that include both upper and lower tier establishments). In non-Seveso countries, safety documents are required at all sites to which the relevant legislation applies (except in Canada, where they are required only when quantity threshold and container capacity criteria are satisfied). However, in the US facilities are divided into 3 groups: Programs 1, 2 & 3. The most detailed documentation is required only for Program 3 facilities (specified industrial categories selected on the basis of accident history).

Is the safety document produced by: 1) the operator; 2) the operator assisted by a consultant; or 3) an independent consultant?

In the majority of countries operators produce safety documents with the assistance of consultants, where additional expertise is required over and above that which is available in-house. In a small number of cases, safety documents are prepared entirely by consultants (with Korea reporting that this is the case for 70% of its safety documents).

Are there any qualification requirements for the person preparing the safety document?

In the majority of cases, responsibility for preparing the safety document remains with the operator. With one or two exceptions, there are no specific qualifications for persons preparing safety documents, though a reasonable level of knowledge and competence is expected. In Slovakia the Ministry of Environment has established a system of professionally qualified persons, who are specialists in the prevention of major industrial accidents. They are either employed directly by operators or work as independent consultants. In Korea, the person preparing the safety document is expected to have relevant field experience and to hold appropriate training certificates, e.g. in HAZOP. In Norway and Sweden the legislation places a specific duty on the operator to ascertain that any consultant working on his behalf has the necessary qualifications.

(b) Is the content of the safety documents specified? If so, what is the required content, and what level of graphical presentation and detail is required?

All respondent countries specify the content of safety documents, normally within the relevant legislation. In countries where the Seveso II Directive applies, minimum data and information requirements are as specified in Annex II of the Directive. In Mexico the information required in safety documents has not yet been specified within the regulatory framework but there are three non-compulsory guides available for operators, one of which is a checklist of 44 items the competent authority is looking for when assessing safety documents.

The level of graphical presentation and detail required varies according to the nature of the hazards and the complexity of the installation. In some countries this is for negotiation between the operator and the regulator, whereas in other cases a certain amount of graphical presentation is required by the legislation. In the US, graphical presentation is not required but it is permitted.

(c) What is the average time taken to prepare safety documents?

The length of time taken to prepare safety documents is difficult to assess accurately and will vary considerably according to the nature of the hazards and the complexity of the establishment. Estimates range from 2-3 months for simple sites to 2 years or more for large, complex sites such as refineries. Figures expressed in terms of chronological time do not give a true picture, however, as they do not give any indication of the number of people working on the safety document or whether they are engaged in writing it on a full- or part-time basis. With hindsight, respondents should have been asked to express answers in person days, to give a more meaningful comparison.

(d) Where establishments are in close proximity to each other, what possibility is there for operators to cooperate with each other in the production of safety documents (e.g. by linking separate safety documents or by producing one overarching safety document for the whole complex?)

Where establishments are in close proximity to one another, each operator must normally produce a separate safety document (but see below for details of the Australian and Canadian systems). The Seveso II Directive requires the competent authority to identify groups of establishments where the likelihood or consequences of a major accident may be increased because of the location and proximity of establishments in the group and the dangerous substances present there (so called "domino effects"). Members of a domino group are required to co-operate with each other and to exchange appropriate information, to enable them to take account of the nature and extent of the overall hazard of a major accident. The Italians have taken these duties a step further in their legislation, with a requirement for the preparation of an integrated area safety report.

In Australia (Victoria), there is a provision in the regulations for operators of separate facilities to coordinate their safety documents. This applies where facilities are geographically close to each other or are separated but connected by pipelines.

In Canada there are cases where operators have prepared safety documents for whole complexes that may incorporate several business units or operations. Proposed changes to the guidelines will include mutual aid agreements for establishments that are in close proximity to each other and do not have adequate resources to deal with an environmental emergency on their own. Environment Canada also encourages establishments to participate in Joint Municipal and Industrial Emergency Preparedness, where they cooperate to harmonise emergency plans.

3. Hazard Identification & Risk Assessment

(a) Which are the main techniques used for hazard identification?

A wide range of hazard identification techniques is employed, with HAZOP being one of the most common (though the UK commented that HAZOP would normally only be applied to new designs or major modifications). Other widely used techniques include What-if, PHA (Preliminary Hazard Analysis) and Operating Hazard Analysis. The Italians have developed a simple index-based method, derived from Dow and Mond indexes, use of which is required by their legislation. They advise that this method (often supplemented by the other techniques referred to above) is adopted by almost all establishments, from the simplest storage facility to the largest refinery.

(b) What use does the risk assessment make of frequency data? Are frequency data measured, estimated or generic or are failure probabilities generated? Is an error analysis required?

Frequency data are widely used in risk assessments, though a few countries, including Mexico, Germany, Korea and Finland, reported that they do not normally use them. Korea has plans to require their use in the future. In the US, use of frequency data is not required/expected but is one option open to operators when conducting risk assessments. In the majority of cases, generic frequency data are used, though site-specific data may be used where available. Error analysis is not normally required, with the UK stating that where a 'cautious' approach is adopted it is not considered necessary to describe the uncertainty in the values.

(c) Does safety/risk assessment make use of Consequence Analysis, and if so, for which type of consequence modelling: 1) toxic cloud dispersion; 2) release to surface water; 3) release to underground water; 4) fire ball/fire effects modelling; 5) explosion effects; 6) other consequence analysis? Which models/standards/thresholds are used in each case?

Risk assessments in the safety documents of all respondent countries make use of consequence analysis. It is most commonly used in relation to toxic cloud dispersion and fire and explosion effects, with a smaller number of countries reporting its use in relation to release to surface and/or underground water. Iceland reports that consequence analysis is used mainly by larger, international companies and Australia (Victoria) reports that the severity of the potential consequences is assessed using a number of techniques, ranging from qualitative judgement based on experience of past incidents to detailed mathematical modelling. A range of different models and techniques is adopted, according to the nature of the installation. In some countries, consequence thresholds are specified (e.g. the US and France) but in others they are not (e.g. the UK, though they remark that many operators use threshold doses published by the regulator for land use planning purposes).

[Note – there is no (d)!]

(e) Is a past accidents and near misses analysis conducted, and where is the data sourced from: site/company internal data, industry data, commercial databases, or databases provided by government agencies?

The use of past accidents and near-misses analysis varies considerably between respondent countries.

In some countries, including Slovakia, the US and Australia (Victoria), there are specific legal requirements for such analyses to be carried out. In Slovakia and France, details of past incident history must be included in the safety document and taken into account when assessing individual and societal risk. In the US, most facilities are required to report their 5-year history of significant accidents involving covered processes. Similarly, in Australia (Victoria) the regulations require a summary of incidents over the past 5 years, based on site/company internal data.

In other countries, including Finland, Sweden and Korea, details of accidents and near misses are recorded on a central database and are analysed by the regulator, but do not form part of the safety document.

Some countries, including the UK and Belgium, have no specific requirement for analysis of past accidents and near misses, but recognise that it can help with identification of hazards/risks and precautions.

Data on past accidents may come from a variety of sources, most commonly site/company internal data and databases provided by government agencies.

(f) How are the risk analysis results presented, e.g. individual risk, societal risk, risk matrix, risk map, etc.?

Preferred methods of presentation of risk results vary between respondent countries, though the majority of respondents reported the use of risk matrices and/or risk maps.

Some countries, including Norway and the UK, reported that the level of presentation expected is proportionate to the risk, with qualitative assessments being acceptable in some cases (depending on the complexity of the plant, surroundings, etc.). The UK commented that quantification is only considered necessary where the risks are high and decisions concerning additional protective measures are based on a cost-benefit analysis.

Korea reported that safety documents include a consequence analysis but not a risk presentation and Iceland stated that they do not use numerical risk criteria.

(g) How much of the hazard identification and risk assessment documentation must be submitted as part of the safety document to be assessed by the regulator?

The amount of hazard identification and risk assessment documentation that has to be submitted as part of the safety document varies considerably. At one end of the scale, Iceland reports that they like to see it all. In Australia (Victoria), on the other hand, although the legislation requires all documentation to be submitted, many operators have been granted an exception on condition that all relevant documents are accessible on site. In other cases, operators are asked to provide sufficient description and documentation in the safety report to show that hazard identification and risk assessment have been carried out systematically, and have been applied to an appropriate set of scenarios, with supporting documents referenced and accessible at the establishment. In Canada there is no requirement on operators to submit any part of their safety document to the regulator, though it must be kept 'readily available'.

4. Guidance

(a) Is guidance provided for those preparing safety documents? If so, what form does it take?

With the exception of Iceland, all countries have produced national guidance on the preparation of safety reports. Iceland relies on the EC Guidance on the Preparation of a Safety Report (which is also used in other countries that implement the Seveso II Directive, but with additional guidance provided at national level). Guidance is also provided to operators by regulators at face-to-face meetings and seminars.

(b) Where provided what does the guidance cover (general, format, content, detail required, etc.?)

Most countries reported that their national guidance includes general advice on the preparation of safety documents, together with advice on the format, content and level of detail required. Guidance on risk assessment is provided in a number of countries, including Mexico, the US, Slovenia and Spain.

(c) Are templates or examples of model safety documents provided?

In the majority of countries the regulator does not provide templates or models of safety documents, though Norway advises that some industry branches have provided their own examples of models that the authorities have commented on. However, models and examples have been provided, to a greater or lesser extent, in Korea, Spain, Poland, Canada and the US. In addition, the Netherlands has provided examples of scenario descriptions (giving suggested format with indication of level of detail) and in Australia (Victoria) examples of hazard identification, risk ranking and components of the safety case are provided

in the guidance material. The Italians report that templates are readily available, though not from official sources.

5. Assessment

(a) Are safety documents assessed by the regulator?

Safety documents are assessed by the regulator in all countries that produce them, with the exception of Canada. The Canadians operate an audit system, with a selection of safety documents being reviewed annually to ensure compliance and document quality. Selection of documents for review is carried out by a mixture of referrals from enforcement officers and random sampling.

If so, what proportion of the regulator's resource is applied to assessment?

Many respondents were unable to estimate the proportion of the regulator's resource applied to assessment. It is impossible to make valid comparisons between countries on this basis, as figures vary according to the nature of the regulator (size of organisation/number of employees/range of activities regulated) and the number of major hazard sites present.

How is the professional competence of assessors maintained?

In order to ensure the professional competence of assessors training is provided. In the majority of cases this takes the form of in-house training provided by the regulator, with updates provided either periodically (once or twice a year) or in response to changes. Some countries make use of training courses organised by external training providers. Many respondents also reported that assessors attend conferences and workshops. Training and knowledge is consolidated through site visits. Parts of the safety document may be assessed by specialists (e.g. engineers), with appropriate professional qualifications and experience.

(b) How is the safety document assessed (do assessors look at the content of the document in detail or do they simply check that required information is present without assessing it further)?

In the majority of countries safety documents are assessed in detail, with assessment typically preceded by a check that the report is complete and meets the minimum information requirements. However, Slovakia reports that as the risk analyses are carried out by professionally qualified persons, they do not consider it necessary to assess them in detail. In Finland the main focus is on checking that the required information is present, with a check that all relevant major accident scenarios have been identified and analysed. In Germany the detail of the assessment varies, with some aspects of the report selected for assessment in greater detail than others. In the Netherlands, a check that the required information is present is followed by on-site verification by a team of inspectors.

(c) Who assesses the safety document (individual, team) and what guidance and procedures are provided? If assessment is done by a team, who is included in the team?

In a few countries safety documents are assessed by individual assessors. These include Canada (where assessments are then reviewed by a team), Mexico and Slovenia. In Germany and the US, assessment may be undertaken by an individual or a team, depending on the nature and complexity of the document. In all other countries assessments are undertaken by a team, typically comprising the inspector responsible for the establishment to which the report relates, together with one or more specialists with appropriate knowledge and expertise in topics such as process safety, mechanical engineering, instrumentation and control, and risk assessment. Some countries, including Iceland, Italy and Slovakia,

involve other agencies such as fire and civil defence in the assessment. In Poland assessment teams are made up of assessors from the State Fire Service, together with Environmental Inspectors.

Although the majority of assessors are employed by the regulator, some countries, including Germany and Australia (Victoria), make use of external experts where there is a need for additional resources. In France a specialist often intervenes in the assessment process through a third party assessment (imposed by the competent authority and paid for by the operator). In the Czech Republic the regulator performs only a minimum information check before passing safety documents on to a team of external contractors for detailed assessment. In some countries, including Norway and Iceland, a co-ordinating committee sends the joint conclusions of all assessors to the operator on completion of the assessment.

(d) How are the scope, depth and breadth of assessment decided upon?

The majority of respondents did not comment on how the scope, depth and breadth are decided upon. Finland stated that it depends on the quantity of the chemicals as well as the complexity of the processes. Germany and the Netherlands remarked that it is determined by team/expert judgement. The Czech Republic advised that it is set out in their assessment procedures and Australia (Victoria) similarly advised that the depth and breadth of assessment are specified in internal policies and assessment framework documents, with tests for licensing prescribed in the licensing requirements. The UK has recently developed guidance for assessors on determining the scope, depth and breadth of assessment, which is based on the nature of the safety document (new report or revision), the nature and spread of the hazards present and the level of risk.

Does your country's legislation specify the time allowed for the completion of assessment? If so, what time is specified?

The length of time taken for assessment varies considerably. In some countries the maximum time permitted is specified in the legislation (e.g. Korea – 30 days; Mexico – 60 days; The Netherlands – 60 days for new establishments and a maximum of 9 months for all others; Czech Republic – 90 days, but with scope for extension where improvements are needed to the document).

How long, on average, does the assessment normally take?

The actual time taken to complete assessments varies widely, depending on the nature of the safety document and the complexity of the establishment. In Canada, where there is no formal assessment process, review of safety documents typically takes only 2-3 days. In France, the majority of assessments are completed in 10 to 30 days. In Iceland and Norway, assessments are normally completed within 3 months. Other countries, including the Netherlands and Germany, report typical assessment times in the range of 6 months to 2 years or more, depending on the complexity of the establishment. In the UK, where assessments have similarly taken in excess of 2 years in a number of cases (largely because assessors have sought additional information from operators where gaps have been identified in the material presented in the safety document) a new system has recently been introduced, which has the effect of requiring completion of assessment within 12 months of receipt of the safety document.

(e) How are deficiencies in the safety document, identified in the assessment, dealt with (partial resubmission, complete resubmission, correction at a later date, etc.)?

A small number of countries operate a licensing system for major hazard sites and deal with deficiencies in the safety document through the licensing process. In Australia (Victoria), for example, deficiencies in the safety document may be dealt with by licence refusal, licence conditions or shorter licence duration, depending on the nature and extent of the deficiencies. In Mexico, completion of the assessment may lead to issuing of an authorisation permit to the hazardous facility, or a request for

amendments and corrections to the safety document, including full resubmission where deficiencies are significant.

In the majority of countries, however, although operators of major hazard sites are under a legal duty to submit a safety document their continued operation is not dependent on the issuing of a licence to operate by the regulator. Methods of dealing with deficiencies in safety documents are broadly similar in the majority of countries. Serious deficiencies (such as failure to provide a structured description of the major accident scenarios, failure to describe safety measures, no safety management system described) are generally dealt with by requiring full resubmission of the document. Less serious deficiencies may result in requests for partial resubmission or additional information to fill any gaps. In other cases, the operator may be asked to make improvements to the document by a specified date, or when the next periodic review of the safety report is due (which is every 5 years in countries where the Seveso II Directive applies).

How are potential deficiencies on plants, identified by the assessment, dealt with?

A number of countries did not answer this part of the question. Of those that did, the most common approach is to follow up the deficiencies at a site visit, where the actual conditions on site can be verified. Where the deficiencies are found to be real (rather than just deficiencies in the written description) appropriate action is taken. This may range from providing advice (normally in writing), through the issuing of enforcement notices, to prohibition of operation of the entire plant in the most serious cases. Licence refusal or the use of licence conditions are also options open to countries where a licensing system operates.

(f) Where the operators of establishments that are in close proximity to each other produce linked safety documents, or where there is one overarching safety document for the whole complex covering a number of establishments, how are the safety documents assessed by the regulator?

In the majority of countries there is no provision for operators of establishments that are in close proximity to each other to produce linked safety documents. Linked documents are most likely to arise where a single operator owns a number of separate establishments in close proximity (reportedly most common in the oil, gas and petrochemicals sectors). Such operators may produce overarching safety documents covering common issues such as safety management systems, together with separate documents covering issues specific to the individual installations within the complex. Where such documents are submitted they may be jointly assessed but the findings from each assessment (including the findings from assessment of common safety documents) are normally reported separately.

6. Purpose of Safety Documents

(a) What is deemed to be the purpose of the safety documents?

There was general agreement that the overall purpose of safety documents is to ensure the protection of people and the environment from the risks of accidents at major hazard sites. The process of producing safety documents should enable operators to systematically identify all possible major accident hazards and to demonstrate that they have taken all measures necessary to prevent such accidents, or to limit the consequences of any accidents that do occur.

A number of respondents also stated that the information provided in safety documents is useful for the purposes of emergency planning, land use planning and informing the public of safety measures in place and of any action that they should take in the event of a major accident.

The Seveso II Directive sets down a number of specific purposes of safety documents, which capture many of the points made above. These may be summarised as follows:

i) Demonstrating that a major accident prevention policy and safety management system have been put into effect;

ii) Demonstrating that major accident hazards have been identified and that the necessary measures have been taken to prevent such accidents and to limit their consequences for persons and the environment;

iii) Demonstrating that adequate safety and reliability have been incorporated into the design & construction and operation & maintenance of the establishment;

iv) Demonstrating that on-site emergency plans have been drawn up and supplying information to enable the off-site plan to be drawn up;

v) Providing sufficient information to the competent authority to enable land use planning decisions to be made in the vicinity of the establishment.

The US stated that safety documents also allow government, industry groups and academic institutions to perform data analysis to better understand the relationships between safety programme implementation and accident prevention.

Korea advised that they see the purpose of safety documents as the prevention of major industrial accidents at the design stage.

(b) Is the safety document expected to demonstrate that the defined purposes of the safety documentation have been met?

The majority of respondents confirmed that the safety document is expected to demonstrate that the defined purposes have been met, though this question did give rise to some confusion. The UK commented that prior to the implementation of the Seveso II Directive, safety documents were largely descriptive in nature. However, safety documents are now required to make clear links between the major accident scenarios and the control measures in place, thereby demonstrating that all measures necessary have been taken to prevent major accidents or to limit their consequences.

(c) How does the regulator decide whether adequate demonstrations of safe operation have been made?

When deciding whether adequate demonstrations of safe operation have been made, the majority of respondents make use of a mixture of desk-based assessment of safety documents and on-site inspection/verification. Some countries, including Belgium and the UK, stated that on-site verification is part of the inspection programme and does not in itself form part of the assessment process. Where desk-based assessment is relied upon, the adequacy of the demonstrations is determined by expert judgement against the requirements of the regulations and/or specific assessment criteria.

7. Review and Revision

(a) Are operators expected to review and revise their safety document once it has been prepared? If so, does this include the risk assessment?

All respondent countries reported that operators are expected to review and revise their safety document once it has been prepared. This will include a review of the adequacy of the risk assessment.

(b) Under what circumstances, including periodically, are operators required to review and revise their safety document?

In countries subject to the Seveso II Directive the circumstances under which the safety document should be reviewed and, where necessary, revised are set out in the Directive and have therefore been transposed into national legislation. As a minimum, safety documents need to be reviewed at least once every 5 years. However, review is also required in response to new facts or new technical knowledge about safety matters, for example arising from analysis of accidents or 'near misses', and developments in knowledge concerning the assessment of hazards. Review is also required in the event of the modification of an installation, establishment, storage facility, or process or of the nature or quantity of dangerous substances, where such modification could have significant repercussions for the prevention or control of major-accident hazards.

Non-Seveso countries also require operators to review and revise their safety documents. However, the triggers for this vary. Irrespective of any changes on site, a periodic 5-yearly update is required in the US, with more frequent revision required in a range of specified circumstances. These include changes in the nature or quantity of hazardous substances present, changes that trigger a revised hazard or consequence analysis, following accidental releases meeting the reporting requirements of the regulator, or where there are changes in emergency contact information. In Australia (Victoria) a licensing system is in operation and operators are required to submit a revised safety document at least every 5 years for licence renewal purposes. In addition to this, revisions are required whenever there is a modification to the facility, after a major incident, when major incident control measures are believed to be deficient, or at the direction of the competent authority. In Canada, operators are expected to review and update their safety documents on an annual basis, in response to testing and exercises, with review and revision also required in response to changes in the inventory of hazardous substances. There is no requirement for periodic review in Mexico or Korea. However, in Mexico, the operator is under a legal duty to submit a new safety document where there are changes in the facility's infrastructure, processes or hazardous materials and in Korea the safety document must be revised whenever the need is identified through operators' change management procedures.

(c) How do the regulators assess revisions to safety documents?

The majority of respondents stated that revisions to safety documents are assessed in the same manner as original submissions. A few countries, including Australia (Victoria), Belgium and the UK, qualified this by stating that, where possible, assessment is limited to those parts of the safety document that have changed and Finland reported that they look again at the whole document, but with the focus being on the changes.

(d) Do regulators require the safety documentation to be kept up to date, and if so, how do they ensure that it takes place?

The majority of respondents stated that they do expect safety documents to be kept up to date. It is not entirely clear, however, whether this is only in response to the changes described in (b), above, or on a more continuous basis. The UK remarked that operators are only expected to update their safety documents where on-site changes are found to have significant repercussions for the prevention or control of major accidents. Both Norway and Iceland stated that they only require a revised safety document at 5-yearly intervals and the Italians advised that there is no mandatory requirement to keep safety documents up to date.

In almost all cases regulators ensure that safety documents are kept up to date through their inspection programmes. In the UK, inspectors are encouraged to examine operators' change management procedures

in the absence of evidence that safety documents are being reviewed and revised appropriately, to check whether they are capable of identifying when review and revision is necessary. Sweden makes use of a database with due dates for revision of safety documents, in order to identify operators who are not meeting their obligations.

8. Use of Safety Documents (Regulator)

(a) What use do regulators make of the information contained in the safety documents (licensing, off-site emergency plans, land use planning, planning site inspections, etc.)?

Extensive use is made of information in safety documents for the purposes of licensing, preparation of off-site emergency plans, land use planning and the planning of site inspections/interventions. Other reported uses include the preparation of accident investigation reports (Korea), hazard analysis (Canada), quality assurance to evaluate the effectiveness of the regulations for the control of major accident hazards (Canada), processing of applications for planning permission by the establishment (Mexico), development of national planning strategy for the protection of people (Mexico), and the imposition of conditions on the establishment (Sweden).

(b) How do the safety document and its assessment fit into the regulator's overall strategy for ensuring that an operator takes the necessary steps to prevent major accidents and limit their consequences for man and the environment?

Respondents seemed somewhat confused by this question and a number failed to provide a meaningful answer, or went no further than to say that it is an essential component of their strategy. This is probably due to the wording of the question, which should have asked for a description of the overall strategy and an explanation of how the safety document and its assessment fit in.

Of those countries that gave an answer, the most common response was that the safety document and its assessment form part of the overall strategy, together with other activities, particularly site visits for inspection and verification of statements made in the safety document. The most detailed answers were given by Australia (Victoria) and the UK. The Australians stated that more general/cross-facility issues are dealt with by reporting serious/significant issues on the regulator's web site, holding education sessions, discussing issues at the Major Hazards Advisory Committee, and revising strategic approaches where the need is identified. The UK stated that a wide range of other factors related to major accident hazards is taken into account when determining inspection topics and their priorities. These include outcomes of previous interventions, the size and complexity of the site, reports of major accidents (both at the site in question and at other similar sites) and other accidents, incidents and near misses, complaints, changes of site ownership, and new knowledge about scientific or technical matters.

(c) Are judgements about enforcement action taken solely on the basis of the assessment of the safety document, or is further evidence sought before action is taken?

The majority of respondents stated that a site visit/inspection is normally undertaken prior to taking enforcement action. However, a distinction emerged between enforcement in relation to deficiencies in the safety document and enforcement in relation to perceived deficiencies in the on-site control measures. Where the safety document itself is clearly erroneous or incomplete, a number of respondents reported that enforcement action may be taken without obtaining further evidence. However, where the document indicates possible deficiencies in on-site conditions, a site visit will normally be undertaken, to verify that the actual conditions on site are as described in the report. In Belgium, the regulator organises an "evaluation commission" to discuss issues arising from the assessment. The operator can ask to be heard

by the commission and information obtained from inspection visits/general site knowledge will also inform the commission's final decision about any necessary enforcement action.

(d) How is verification of accuracy of the content of the safety documents carried out? For instance, are sites visited (e.g. before the operation of a new plant, after completion of assessment of safety documents for an existing plant, other) or is verification carried out by other means? If so, what other means are used?

The majority of respondents stated that verification of the accuracy of safety documents is carried out by inspection visits after completion of assessment. In the case of new installations there may also be visits during construction/ commissioning. Some countries, including Slovakia and Mexico, reported that visits might take place during assessment. In Australia (Victoria), verification takes place as early as possible to enable any issues to be addressed prior to making a licensing decision. Other means of verification reported include third party assessment and comparison with similar plants and standards (France), auditing of hazardous sites by the Office of Environment's General Advocate (Mexico), and use of telephone calls, e-mail and hard copy information requests (US).

9. Use of Safety Documents (Operator)

(a) How are operators expected to use the safety document? For example, how is it expected to influence arrangements, e.g. for process safety, risk assessment, safety management systems and emergency response?

The majority of respondents stated that safety documents provide a means for operators to identify improvements needed to their control measures (both physical controls and management and emergency response arrangements), to ensure that all necessary measures are in place to prevent major accidents or to limit the consequences of any that do occur. A number of countries (including Finland, the US and Belgium) stated that safety documents can be useful as a training resource and/or as a means of communicating relevant information about hazards and control measures to stakeholders. Others (Belgium, Norway, Canada) stated that they are useful for testing/ implementing emergency response arrangements. A further identified use (Belgium, the UK) involves linking of safety documents with the management of change process, enabling modifications/changes on site with implications for the control of major accident hazards to be identified and acted upon. However, Germany remarked that the majority of operators view the safety document as a document prepared for the authorities and Korea stated that it is not easy for operators to find a use for safety documents.

(b) Do operators integrate the safety document into their system of managing health and safety at their site, and if so how?

In a few countries, including Poland, Finland, Norway, Sweden and Australia (Victoria), safety documents are seen as an integral part of the overall safety management system and may also form part of environmental and quality management systems. However, the majority of respondents stated that this is rarely achieved, except perhaps by larger companies. In the UK there is some anecdotal evidence that a small number of operators see the safety report as an important tool within the safety management system, for use in ensuring that staff at all levels understand their role in the prevention and mitigation of major accident hazards. In Iceland, the more advanced operators publish their safety documents on their internal websites, such that they are accessible to all employees, and safety documents are integrated into training programmes. The US reported that safety documents are viewed as a minor aspect of health and safety management and Italy reported that integration is weak and does not affect operation. In Canada, safety documents take the form of emergency plans, for use in the event of an incident, and the prevention, preparedness and recovery components have indirect bearing on health and safety management. Belgium

remarked that integration is only likely where the risk identification and description is based on the operator's own study, rather than having been undertaken as a specific exercise to comply with legal obligations to submit a safety report.

(c) Are operators expected to keep the safety document up to date and for it to be used as a 'living' document, and if so, how? What guidance are operators given in order to achieve this?

The majority of respondents stated that operators are expected to keep safety documents up to date (with the notable exception of France, who stated that updating is not required). However, the distinction between updating as part of the review and revision process, to meet specific legal requirements, and updating as part of a process of continuous improvement, was not sufficiently clear. The answers provided gave an indication that in many countries (including France) updating of safety documents is required only in accordance with legal requirements.

This question was intended to elicit information about the extent to which operators apply continuous improvement to their safety documents, through their change management procedures, in order to achieve a 'living' safety document that reflects the actual conditions prevailing on site, rather than one that is a snapshot of conditions at the time that the document was originally produced/last updated. Only Australia (Victoria) regards safety documents as truly 'living' documents. They provide guidance in schedules to the regulations, in guidance notes published on the regulator's web site, in the form of seminars and via Safety Case Officers allocated by the regulator to provide site-specific advice to operators on how safety documents can be developed and maintained as 'living' documents. In other countries, including Belgium and the UK, the regulator is taking steps to persuade operators of the benefits of keeping safety documents up to date, in order to shift the emphasis away from the minimum legal requirement for review/revision at 5-yearly intervals. Guidance for operators on review and revision of safety documents has been published on the UK regulator's web site in an effort to encourage this approach, though this is still largely based on legal requirements, with the 'living' safety report concept not yet well developed. In Mexico, Korea and Spain, it is expected that continuous improvement will be achieved through proper implementation of operators' change management systems. Sweden, Slovenia and Poland report that regular updating should occur where operators conform to international standards (ISO/OHSAS).

(d) Is the operator's work force at all levels, from senior management to plant operator, expected to be aware of the safety document and its significance, and if so, how is this achieved?

The majority of respondents stated that the workforce is expected to be aware of the safety document and its significance. Operators are generally expected to provide some form of training to workers at the site (both employees and contractors/visitors), the content and nature of which will vary according to the roles and responsibilities of the individuals concerned. In some countries (the Netherlands, Germany) the safety management system and/or major accident prevention policy are considered to be the most significant parts, and in other countries (Iceland, Slovakia, Canada) training is largely in the form of exercises of the emergency plans. In Australia (Victoria) and the US, operators are under a duty to consult employees/employee representatives during the development of safety documents and to provide them with information (including access to safety documents, once prepared), instruction and training. Legal duties to provide familiarisation training also exist in the Czech Republic, Spain and Norway.

(e) May an operator request that access to information contained in safety documents be limited on the grounds of personal or commercial confidentiality, or on security grounds?

All respondents confirmed that the operator may request that information contained in the safety document be limited, though in Sweden there have apparently been no such requests to date and requests are rare in Korea. In the majority of cases information must be submitted to the regulator for assessment

purposes but may be removed from the publicly available version of the safety report (see also answers to question 10(a), below). However, in Australia (Victoria) operators may request an exemption from submitting information on hazard identification and assessment to the regulator, provided that the exempted information is available for inspection on site by the regulator and employee representatives.

10. Use of Safety Documents (Public)

(a) Is the safety document available to the public, and if so, how is it made available?

Article 13(4) of the Seveso II Directive requires that safety reports be made available to the public (with the proviso that material may be excluded from the publicly available version of the report for reasons of industrial, commercial or personal confidentiality, public security or national defence). In the majority of countries where Seveso II applies, the public may obtain access to safety reports via the regulator. In a few cases access may be obtained via the operator and/or the regulator (Finland, Slovakia, Germany). Due to the on-going terrorist threat in the UK, the Government has directed that the public should be prevented from obtaining access to safety documents until further notice, for reasons of national security. However, the public may make requests for access to information contained in safety documents under the terms of the Freedom of Information Act and requests relating to material that is judged to be non-sensitive on security grounds will be granted.

In non-Seveso countries the approach varies. In Korea the public have no right of access to safety documents. In Australia (Victoria) full safety documents are not publicly available but operators have a duty to keep the local community informed and this includes a requirement to provide a summary of the safety document (also to be made available in public libraries). In addition, the public are entitled to obtain information from safety documents by making requests under the Freedom of Information Act. In Canada, the US and Mexico the public are given access to safety documents in much the same way as in Seveso countries.

(b) What use is made of the safety documentation in the preparation of off-site emergency plans?

All countries reported that information contained in safety documents is used in the preparation of off-site emergency plans. In Seveso countries operators are required to provide relevant information from safety documents to the competent authority responsible for drawing up the off-site plan. Respondents reported that the most useful information for emergency planning purposes is details of potential major accident scenarios, including the nature of dangerous substance involved and the extent and severity of likely consequences.

(c) Is the public kept informed about changes at the site and in the safety document, and if so how?

In Seveso countries operators are required to provide information to the public, normally in writing, at intervals not exceeding 5 years. This information must be reviewed every 3 years, and in the event of any changes at site, and operators must update and re-issue the information as appropriate. The way in which this is achieved varies, however. In some countries (e.g. the UK, Finland, Czech Republic) operators produce leaflets for distribution to the public. Other countries (e.g. the Netherlands and Sweden) make use of announcements in local newspapers. Information may also be disseminated via web sites and information bulletins produced by the competent authorities (Poland) and at public meetings (Norway). In France, new legislation on risk prevention that came into force in 2003 required the creation of local Information and Dialogue Committees, which pass on information to the general public. These committees, which are set up by the authorities, involve all relevant stakeholders, including local

authorities and representatives, operators, employees and local residents and enable dialogue on the prevention and control of industrial risk.

In non-Seveso countries approaches differ. As there is no public access to information in Korea, they rely on the use of alarms and loud speakers to evacuate the local area in the event of an accident. In Australia (Victoria) the local community is provided with a summary of the safety document and operators organise regular community meetings and issue regular bulletins. In Canada operators are encouraged to keep the public informed of changes but there is no legal requirement to do so. In the US the public can obtain information by contacting facilities direct or by reviewing safety documents at Environmental Protection Agency and Department of Justice reading rooms but information on changes is not disseminated proactively. In Mexico operators are responsible for keeping the public informed, in accordance with community involvement programmes, which form part of safety documents.

(d) What restrictions are placed, either by the regulator or by other governmental or non-governmental organisations, on public access to safety documents on the grounds of security?

In Seveso countries the regulator or government may restrict access to safety documents on the grounds of security. However, the extent to which this occurs varies in practice. At one end of the scale, countries such as Sweden and Iceland report that there are no restrictions on access to information in safety documents on security grounds. At the other extreme, in the UK, where the government has assessed that there is a serious and sustained threat from international terrorism, all safety documents have been removed from the public registers (via which the public would normally gain access to them) for reasons of national security. The public may still obtain some information from safety documents by making requests under the Freedom of Information Act, but such requests may also be refused on national security grounds if the information requested is judged to be sensitive.

In non-Seveso countries the approach varies. In Korea there is no public access to information so national security is not an issue. In Mexico, the Law of Public Access to Government Information and Transparency specifies cases where confidential information should not be released, one of the reasons being that release would constitute a national security risk. In Australia (Victoria) public access is limited to information regarding the safety of the facility, including a summary of the safety document, and requests for access to information in safety documents made under the Freedom of Information Act can be refused on security grounds. In Canada the regulator does not place restrictions on access to safety documents by the public, but documents are regarded as the property of the site operator, who may choose to restrict access. In the US, where the threat of terrorism is also high, off-site consequence analyses contained in safety documents can only be viewed by members of the public at Environmental Protection Agency or Department of Justice reading rooms. Members of the public may read (but not copy) up to 10 safety documents per month. Furthermore, government officials are prohibited from disclosing details of off-site consequence analyses (except at specified reading rooms), or of State-wide and national rankings derived from such information.

(e) In the case of establishments close to each other, is the release of safety documents co-ordinated or is an integrated safety document for the whole area provided?

The majority of respondents reported that this does not normally happen, though co-operation and sharing of information during the production of safety documents is common. Italy stated that an integrated safety document for the whole area may be provided and Spain stated that where establishments are close to each other safety documents may be presented in a co-ordinated way. The Netherlands and Sweden stated that this does not happen but off-site emergency plans may be co-ordinated for a whole industrial complex. In Mexico operators are encouraged to share information and organise Local Committees for Mutual Assistance in case of a Major Accident. In the US there is no regulatory

requirement for operators to co-ordinate release of safety documents but they do make joint public presentations.

C. DISCUSSION

The questionnaire aimed to investigate a number of issues, as set out in the introduction to this report. General findings in relation to each of those issues are discussed below:

I Whether all OECD member countries use safety documents, and if so, how those documents compare between different countries

All member countries that completed the questionnaire use safety documents, with the exception of Turkey (where action is underway to comply with the Seveso II Directive, and therefore to introduce safety documents) and Japan. Comparisons between documents are difficult to make, based on the information collected. However, the majority of safety documents include a hazard analysis, risk assessment and consequence analysis. Most also include details of control measures in place (both physical controls and management arrangements) to prevent major accidents, and emergency response arrangements to deal with any accidents that do occur. The overall structure and level of detail of the documents is not known, however.

II What sort of guidance member countries provide to operators to assist them with the preparation, review and revision of the safety documents

With one exception, all countries reported that they provide national guidance on the preparation of safety reports. This typically contains general advice on the format, content and level of detail required. In a number of cases this guidance is supplemented by specific models and examples, to assist operators in understanding more clearly what is required of their safety documents. The questionnaire did not include a specific question about guidance on review and revision.

III How member countries approach assessment of safety documents

Safety documents are assessed by the regulator in all countries that produce them, with the exception of Canada where a sample of documents is reviewed annually. In the majority of cases safety documents are assessed in detail, most usually by a team of assessors comprising the site inspector together with one or more specialists with appropriate expertise. The time taken to complete assessments varies considerably, from under 30 days to in excess of 2 years. The reasons behind this are not fully evident from the answers given and may be worthy of further investigation. (For example, differences could be due to differences in the nature of the safety documents, complexity of installations, assessment methodology or action taken to rectify deficiencies in the document.)

IV How member countries define the purposes of safety documents and what they consider to be adequate demonstrations that those purposes have been met

There was general agreement that the overall purpose of safety documents is to ensure the protection of people and the environment from the risks of accidents at major hazard sites. The Seveso II Directive sets out a number of specific purposes of safety documents, which take the form of a series of required demonstrations, and non-Seveso countries also identified a number of specific purposes.

Unfortunately, question 6(c) asked for details of *how* the regulator decides whether adequate demonstrations have been made, rather than *what* they consider to be adequate demonstrations. Answers

given therefore related to *how* the information is obtained (i.e. by a mixture of desk-based assessment and on-site inspection/verification) rather than *what* information is required.

V How regulators and operators use safety documents once written

Regulators make extensive use of safety documents for a range of purposes, including licensing, preparation of off-site emergency plans and land use planning. Safety documents form part of regulators' overall strategies for ensuring that operators take the necessary steps to prevent major accidents and limit their consequences for man and the environment. A key output from assessment is the identification of topics for inclusion in intervention plans. In conjunction with on-site verification, safety documents form the basis for establishing that all necessary control measures are in place.

Although comments were made that some operators view the preparation of safety documents as little more than a legal requirement, to satisfy the regulator, a number of uses were identified. These include a means for operators to identify improvements needed to their control measures, a training resource, and a means of communicating relevant information about hazards and control measures to stakeholders. Some countries reported that safety documents are seen as an integral part of operators' overall safety management systems. However, the majority of respondents stated that this is rarely achieved, except perhaps by larger companies.

VI How operators keep the public informed

In the majority of countries the public can obtain access to safety documents and/or information contained in them via the regulator (and in some cases via the operator). The only real exception is Korea, where the public have no right of access to information.

In Seveso countries, operators also have a duty to provide information on safety measures and the action to be taken in the event of a major accident to anyone likely to be affected. This most usually takes the form of leaflets or announcements in the local press, which must be reviewed and re-issued on a regular basis. In other countries, methods used to keep the public informed vary but include the use of public meetings, information bulletins and web sites.

D. CONCLUSIONS

The overall conclusion is that the majority of OECD members operate very similar systems for the control of major accident hazards. Safety documents are widely used and their purposes are broadly similar. Documents are assessed in detail by regulators and inform subsequent intervention plans. They form the basis of operators' demonstrations that all necessary measures have been taken to prevent major accidents, or to limit the consequences for man and the environment of any accidents that do occur.

This project has provided a useful overview of the systems in operation in different member countries. However, it is difficult to draw detailed conclusions about the differences (or similarities) and a number of questions remain unanswered. To aid in the development of international best practice it may be worthwhile undertaking a further project (or projects) to look at the following issues in more detail:

(i) Content of safety documents

The information elicited by this study was not sufficient to enable detailed comparisons between safety documents from different member countries. Benefit could be gained from examining more closely the variations in style of documents, e.g. in terms of content, presentation and level of

detail. Such a study could enable identification of desirable features of a safety document, including essential information and that which could be omitted without detracting from the ability of the document to make adequate demonstrations that all necessary measures have been taken for the prevention or mitigation of major accidents. A key concern of operators is that there is often a need to include information in safety documents that has previously been provided to regulators for other purposes. Approaches for reducing the requirement for such duplication could also be investigated.

(ii) Meaning of "demonstration"

One of the stated aims of this project was to investigate how member countries define the purposes of safety documents and what they consider to be adequate demonstrations that those purposes have been met. As explained above, due to the wording of question 6(c) the second part of this aim was not met. A further study to investigate the demonstration requirements imposed on operators in different member countries, and how different regulators form judgements about the adequacy of those demonstrations, is worthy of consideration. Such a study could assist in forming a view about essential and non-essential information in a safety document, as described in 15.i.

(iii) Time taken to assess safety documents

As stated in the discussion, the time taken to complete assessments of safety documents varies considerably, from under 30 days to in excess of 2 years. The reasons for this variation may be worthy of investigation as part of a further project. Differences could be due, at least in part, to differences in the nature of safety documents (which links to item 15.i), or to differences in assessment methodology and action taken to rectify deficiencies in the document (which links to item 15.ii, demonstration requirements).

(iv) Use of safety documents by operators

A further issue highlighted is that operators often have difficulty making good use of their safety documents, once produced. Bearing in mind that the production of safety documents involves a considerable investment of time and resource by operators, it would clearly be in their interests to put that investment to optimum use. A project to develop best practice in this area would require the involvement of industry representatives (operators, trade associations, etc.), as there would be a need to explore the ways in which safety documents are currently used and to share ideas. Such a project could encompass development of the "living" safety document concept. A living safety document is one that is kept up-to-date such that it continues to reflect actual conditions on site and is fully integrated into operators' safety management systems.

Two further projects will probably be required if members wish to follow up all these issues. The first could deal with some, or all, of items (i), (ii) and (iii), which are linked as described above. However, item (iv), which requires the input of industry representatives, would probably need to be treated as a project in its own right.