



European Union Network for
the Implementation and Enforcement
of Environmental Law

Incidental Releases from Industrial Installations

FINAL REPORT

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The European Union Network for the Implementation and Enforcement of Environmental Law is an informal network of the environmental authorities of EU Member States, acceding and candidate countries, and Norway. The European Commission is also a member of IMPEL and shares the chairmanship of its Plenary Meetings.

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The expertise and experience of the participants within IMPEL make the network uniquely qualified to work on certain of the technical and regulatory aspects of EU environmental legislation. The Network's objective is to create the necessary impetus in the European Community to make progress on ensuring a more effective application of environmental legislation. It promotes the exchange of information and experience and the development of greater consistency of approach in the implementation, application and enforcement of environmental legislation, with special emphasis on Community environmental legislation. It provides a framework for policy makers, environmental inspectors and enforcement officers to exchange ideas, and encourages the development of enforcement structures and best practices.

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<p>Title report Incidental Releases from Industrial Installations</p>	<p>Number report: 2006/17</p>
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<p>Executive Summary</p> <p>The main objective of this IMPEL project was to improve and harmonise the implementation of the IPPC Directive through the exchange of information and provision of advice between Member States and Candidate Countries. In addition, another objective was to exchange the experiences on best practices, and compare and evaluate different practices concerning incidental releases.</p> <p>The project concerned large industrial installations listed in Annex I of the IPPC Directive with the exception of agriculture. It explored: 1) the general conditions on preventing and managing incidental releases from industrial installations; 2) how permits include demands on the operator concerning incidental releases, either as permit conditions on emission limit values or as parameters for different measures or techniques; 3) how impacts of incidents are assessed in order to determine enforcement; and 4) the mechanisms by which regulators communicate impacts to communities in order to minimise concern or take the appropriate actions to protect the community.</p> <p>The aim has been to address key issues and identify good practices for dealing with incidental releases in industrial installations.</p> <p>Some of the key findings:</p> <ul style="list-style-type: none"> • a definition of incidental releases and guidance to manage such incidental releases should be specified • good examples of permit conditions to be applied already exists • electronic response is needed from the operator to the authorities to have a written document of the incident • 24-hour hotline to serve all parties. <p>Some proposals for further work:</p> <ul style="list-style-type: none"> • guidance on risk assessment and monitoring; • development of the BREFs; • more effort should be put into supervision of the installations; • disseminating information to the public should be open and straightforward • more training should be given to both authorities and operators 	
<p>Disclaimer</p> <p>This report on Incidental releases from Industrial Installations is the result of a project within the IMPEL Network. The content does not necessarily represent the view of the national administrations or the Commission.</p>	

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0 SUMMARY

The IMPEL project on incidental releases from industrial installations began in June 2006. Articles 3, 6 and 9 of the Council Directive 96/61/EC of 24 September 1996 concerning Integrated Pollution Prevention and Control (IPPC Directive) and Chapters IV, V and VII of the Recommendation of the European Parliament and of the Council of 4 April 2001 providing for minimum criteria for environmental inspections in the Member States (2001/331/EC) (RMCEI) address incidental releases. This project focused on large industrial installations with the exception of agriculture. The project explored conditions on preventing and managing incidental releases from industrial installations with integrated environmental permits. Major accidents covered by the Seveso Directive were not dealt with in this project; rather the focus was on small incidental releases which altogether could cause an installation to exceed its emission limit values.

The main objective of the project was to improve the implementation of the general principles and the requirements of preventive and mitigation measures against pollution as specified in the IPPC Directive and the RMCEI through the exchange of information and provision of advice between Member States and Candidate Countries. Another objective was to improve inspection and enforcement through developing the network of permitting and supervising authorities.

Under this project the following good practices were identified as supporting the main objective:

- Creating specific guidelines for the defining incidental releases either as part of a permit document or as guidance document.
- Creating guidance on risk assessment.
- Issuing concrete permit conditions. Some good examples of permit conditions for prevention, management, risk assessment or notification of incidental releases are described.
- Improving BREFs in such a way that incidental releases are taken better into account, especially more information on how to prevent incidental releases is required.
- Developing an environmental management system (EMS) which will help to increase the awareness and knowledge of the operator and which will help to improve the management of the installation. It is also good practice to develop the skills of both authorities and operators, and improve safety management systems together with an EMS.
- Some examples of good practices were given for carrying out non-routine inspections, in investigations of incidents and for enforcement.
- Electronic reporting, categorisation and standard response, written procedure and a 24-hour hotline are seen as good practices.
- Strengthening cooperation between all involved parties.
- Providing general training for environmental authorities and operators and raising the level of knowledge of these issues.

Proposals for further work and development:

- Specific definition of incidental releases.
- BREFs that include more information on how to prevent incidental releases.
- Permit conditions with announcement limit values.
- Rapid actions from the supervising authority in the event of an incident.
- Concrete permit conditions with more specific information from the operators about possible situations that may lead to incidental releases.

1 INTRODUCTION

One of the topics that is of particular concern to permit granters, inspectors, stakeholders and industry itself is how to prevent industrial incidental releases. When the emissions to water and air and the waste produced by an installation are under control and below the limit values set in the permit decision, more attention should be paid to incidental releases. These incidental releases can e.g. be related to malfunctions in processes or treatment plants or alternatively they depend on the human factor. Nowadays, sudden unexpected emissions make up a considerable part of the annual emissions of installations. These incidental releases can e.g. be related to malfunctions in processes or treatment plants or alternatively they can be caused by the human factor.

This project did not deal with major accidents according to the Seveso Directive, rather it focused on small incidental releases which altogether could be a reason for exceeding the emission limit values.

The project concerned large industrial installations (excluding agriculture) listed in Annex I of the Integrated Pollution Prevention and Control (IPPC) Directive. The project was carried out during one and a half years. It explored:

- 1) the general conditions on the prevention and management of incidental releases from industrial installations;
- 2) how permits include demands on the operator concerning incidental releases either as permit conditions on emission limit values or as parameters concerning different measures or techniques;
- 3) how the impact of incidents are assessed in order to determine enforcement or to communicate with the wider community; and
- 4) the mechanisms by which regulators communicate impacts (or the lack of them) to communities in order to minimise concern or take the appropriate action to protect the community.

The project covered several industrial sectors to determine a list of general parameters for permit conditions and, in addition, to determine the practice on compliance control in regard to the following provisions in Council Directive 96/61 EC on IPPC:

- Article 3 – the general principle governing the basic obligations of the operators dealing with releases;
- Article 6 – information to be included in the application for an environmental permit; and
- Article 9 – stipulations about the conditions of a permit.

In addition to these articles in the IPPC Directive, the Council Recommendation 2001/331 on Minimum Criteria for Environmental Inspections (RMCEI) were taken into account.

The main objective of the project was to improve the implementation of the IPPC Directive through exchange of information and provision of advice between Member States and future Member States.

Another objective was to improve inspection and enforcement through developing the network of permitting and supervising authorities and discussing prevention and management of incidental releases.

The third objective was to exchange experiences on best practices, to compare and evaluate different practices concerning incidental releases.

A three-step process was used to get the necessary information. The first step was to draw up a draft questionnaire and to discuss it at the first meeting (15 September 2006), which had participants from 13 countries: Croatia, Denmark, England & Wales, Finland, Germany, Italy, Latvia, Poland, Portugal, Romania, Slovakia, Slovenia and Spain (Basque Country). The final questionnaire was sent out to the participating countries – the 13 mentioned above and Scotland and Sweden. The replies to the questionnaire were then analysed. The second step was to hold a seminar to get more in-depth information, where the most problematic questions were discussed, key difficulties identified and good practices for different situations were agreed on. The seminar was held in Helsinki on 9–10 May 2007. The third step was to draw up the draft final report to be presented at the IMPEL Plenary Meeting in Lisbon on 28–30 November 2007.

The questionnaire covered specific topics from the IPPC Directive and the RMCEI and their implementation in the countries. In particular, the contents of Article 3, 6 and 9 of the IPPC Directive were looked at. The questionnaire also covered other topics such as competent authorities and other organisations, environmental management systems and communication to the community of incidental releases. The aim of the questionnaire was to clarify the similarities and differences between the countries in implementing the directive and the recommendation and in the practices of the authorities permitting IPPC installations. The following countries replied to the questionnaire: Croatia (HR), Denmark (DK), England & Wales (ENW), Finland (FI), Germany (DE), Italy (IT), Latvia (LT), Poland (PL), Portugal (PT), Romania (RO), Scotland (SCT), Slovakia (SK), Slovenia (SI), Spain (Basque Country) (ES) and Sweden (SE). The compilation of the answers to the questionnaire is presented in Annex I to this report.

In the seminar the analysis of the questionnaire was presented by the project team. Mr Markku Hietamäki, Environmental Counsellor, Finnish Ministry of the Environment presented a Finnish example of a possible permit condition for incidental releases. The condition explores quite a new way of thinking. The possibilities to minimise risks in industry were presented by Ms Hilka Hännikäinen, Manager of Environmental Affairs, from Stora Enso Oyj in Finland. A Finnish project on Environmental risk analysis of incidental emissions was presented by Ms Nina Wessberg, Researcher, VTT Technical Research Institute of Finland. The themes for the working groups were: "How to consider incidental releases in the permit procedure?" and "How are incidental releases inspected and enforced?". Key difficulties in the handling of incidental releases were discussed in the seminar and possible solutions to the problems were suggested. Finally, good practices for the consideration of incidental releases in environmental permitting and supervision of large industrial installations were agreed on.

Mr Hietamäki, and Mr Alec Estlander, Division Manager, Finnish Environment Institute (SYKE) chaired the seminar. The practical organisational tasks of the seminar were carried out by Ms Anna-Leena Manner, Planner, SYKE. The seminar agenda and the list of participants are presented in Annex II of this report. The seminar report was sent out to the participants for comments on 13 June 2007 and their comments have been incorporated into the seminar report and the final report.

A draft final report detailing the results of the study, current permitting and compliance control practices and voluntary agreements, the replies to the questionnaire and the results of the

seminar was drafted by the project team. The report was sent out for comments in October 2007 to the participants in the project. The draft final report was sent to the IMPEL coordinator at the end of October 2007 for approval at the IMPEL Plenary Meeting at the end of November 2007.

The Finnish Environment Institute (SYKE) led the project. The project team consisted of the project leader, Ms Marianne Lindström, Project Manager, SYKE, and two project experts: Mr Mikko Attila and Ms Sirkka Koskela, Environmental Scientists, SYKE. The project also had two other experts, Mr Mika Toikka and Mr Harri Majander, from Southeast Finland Regional Environment Centre. Ms Lindström, Mr Attila and Ms Koskela drafted this report.

We are most grateful to all who participated in the project by taking part in the workshop, by answering the questionnaire, by taking part in the seminar and by providing us with examples of permit conditions and with comments on the draft seminar report or the draft final report.

2 LEGAL BACKGROUND

2.1 Implementation of the IPPC Directive

The regulatory approach has been the traditional way to guide environmental protection in the European Union. Legislation and environmental permits still dominate as environmental policy tools.

The IPPC Directive adopted by the European Council on 24 September 1996, was published on 10 October 1996, and entered into force on 30 October 1996. The Member States had to take appropriate implementing measures by 30 October 1999. The requirements to apply the authorisation requirements to new plants must take effect no later than three years after the directive entered into force. Many of the Member States failed to meet that deadline. Some of the directive's provisions had to be applied to existing plants by the same date, whereas the remaining had to be applied within eight years thereafter (Article 5), or by 30 October 2007.

After the implementation of the IPPC Directive the emissions are well regulated and the discharges from the industrial installations have diminished. Therefore the incidental releases are often a considerable part of the annual emissions and that is a problem both for the environmental authorities and the industry itself (Figure 1). It is often difficult to find a way to prevent those situations.

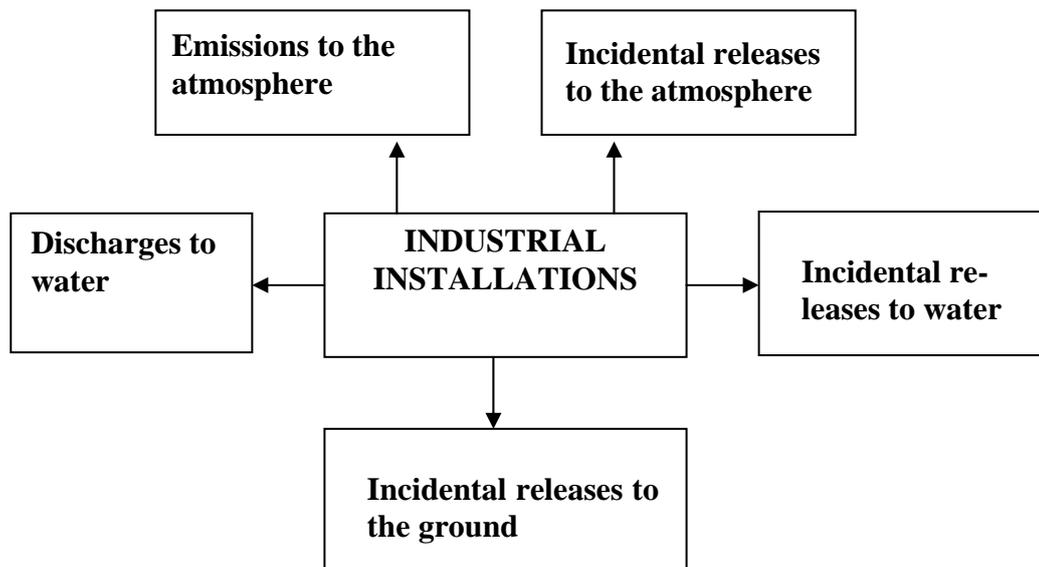


FIGURE 1. The releases from industrial installations

2.1.1 Implementation of the Article 3 a, b, e of the IPPC Directive

IPPC Directive, Art 3 a, b, e:

"General principles governing the basic obligations of the operator

Member States shall take the necessary measures to provide that competent authorities ensure that installations are operated in such a way that:

- a) all the appropriate preventive measures are taken against pollution in particular through the application of the best available techniques;
- b) no significant pollution is caused;
- e) the necessary measures are taken to prevent accidents and limit their consequences

For the purposes of compliance with this Article 1, it shall be sufficient if Member States ensure that the competent authorities take account of the general principles set out in this Article when they determine the conditions of the permit."

All countries besides Croatia have implemented the Articles 3 a, b and e of the IPPC Directive as such in the national legislation. In Croatia it is stipulated as follows (Annex I, Table 1):

"IPPC Directive has not yet been implemented but content of following national legislation is correspondent to Article 3 of the Directive: Environmental Protection Act (Official Gazette No. 82/94, 128/99) Art 11, para 1, National Water Protection Plan (OG 8/99), Environmental Protection Act (OG No. 82/94, 128/99) Art 11, para 1, Convention Art 3, para 1."

2.1.2 Implementation of Article 6 of the IPPC Directive

IPPC Directive, Art 6

"Applications for permits

Member States shall take the necessary measures to ensure that an application to the competent authority for a permit includes a description of:

- the installation and its activities,
the raw and auxiliary materials, other substances and the energy used in or generated by the installation,
the sources of emissions from the installation,
the nature and quantities of foreseeable emissions from the installation into each medium as well as identification of significant effects of the emissions on the environment,
the proposed technology and other techniques for preventing or, where this is not possible, reducing emissions from the installation, [...]"

All the Member States in this project have implemented this article. In Croatia Article 6 has not yet been implemented but the content of following national legislation is correspondent to Article 6 of the directive: Ordinance on Water Management Legal Acts Issues (OJ 28/96) Art 14, 15.5, Ordinance on Limit Values of Dangerous and other Substances in Waste Water (OJ 40/99,6/01,14/01) Art 1, 2.

2.1.3 Implementation of Article 9 of the IPPC Directive

IPPC Directive, Article 9

"Conditions of the permit

1. Member States shall ensure that the permit includes all measures necessary for compliance with the requirements of Articles 3 and 10 for the granting of the permits in order to achieve a

high level of protection for the environment as a whole by means of protection of the air, water and land.

2. [...]

3. The permit shall include emission limit values for pollutants, in particular, those listed in the Annex III, likely to be emitted from the installation concerned in significant quantities, having regard to their nature and their potential to transfer pollution from one medium to another (water, air and land). In necessary, the permit shall include appropriate requirements ensuring protection of the soil and ground water and measures concerning the management of waste generated by the installation [...] Where appropriate, limit values may be supplemented or replaced by equivalent parameters or technical measures.

4. Without prejudice to Article 10, the emission limit values and the equivalent parameters and technical measures referred to in paragraph 3 shall be based on the best available techniques [...]

5. The permit shall contain suitable monitoring requirements [...]"

The Member States have implemented this article. Croatia has not implemented it yet but the content of following national legislation is correspondent to this article: Ordinance of Water Management Legal Acts issues (OJ 28/96) Art 17 and Ordinance on conditions which should be fulfilled by authorised laboratories (OJ 78/97, 65/05) Art 1.)

2.2 Council recommendation 2001/331 on Minimum Criteria for Environmental Inspections

2.2.1 Plans for environmental inspections

In the recommendation it is said that Member States should ensure that environmental inspections are planned in advance and that the plans shall apply to all environmental inspections of controlled installations within their territory. It is also said on which basis the plans should be produced and what they should cover.

The replies to the questionnaire show that almost all Member States have plans for inspection. In Italy this article had not been transposed yet although Italy has a draft document containing all the information required in the RMCEI that integrated the EU document with national criteria. Croatia said that the legal requirements for establishment and implementation of inspection plans have not been transposed yet, but inspection plans for routine inspections are developed annually, quarterly and monthly. (Annex I, Table 4)

England & Wales have plans for environmental inspections that are produced by the Environmental Agency for each site and these are known as Compliance Assessment Plans. Finland and Poland have guidance on compliance monitoring of environmental permits.

In Germany every state has a provision. The state of Schleswig-Holstein has a plan for environmental inspections for plants, which have to fulfil the requirements of the federal emissions control act (4.9.2002) and Hamburg has a plan for environmental inspections for plants (1998 and revised in January 2004). Latvia has a manual for environmental inspectors and Romania has technical norms on the organisation and development of inspection and control activities in the environmental protection field. In Slovakia the main content of the provision is incorporated into the IPPC act and to the main sector acts, such as Water protection act, Waste management act, and Air protection act.

2.2.2 Site visits

In the chapter V of the RMCEI the criteria for site visits are listed, such as an appropriate check, exchange of information between authorities, findings reported and exchanged and a legal right of access to sites. It is also said that the site visits should be carried out regularly. The criteria for carrying out non-routine site visits are also listed; serious environmental complaints, occurrences of non-compliance, a new permit and a renewed permit.

Most of the Member States carry out both routine and non-routine site visits. Also in Croatia inspectors have the legal rights of access to installations and all necessary documentations. Findings after each control are stored, together with the pertaining documentation collected during control pursuant to the prescribed procedure. Information on single findings are forwarded to other inspectorates and responsible bodies. Reports on proceedings and findings are available to the public on request.

In Poland the guidance for environmental inspections includes all types of inspections: routine and non-routine inspections (in response to complaints, accidents, incidents and non-compliance). Non-routine site visits are carried out immediately in the investigation of serious environmental accidents after these come to the notice of the inspecting authority. Generally the authority has one month to carry out an inspection in response to complaints (according to Administrative Code Act).

Slovenia has one environmental inspection authority. By the provisions of the Environmental protection law there are also other inspections which control operation of installations in the field of their responsibility.

Spain (Basque Country) has an Environmental Protection Act 3/1998 for the Basque Country covering air, water, waste, soil and noise legislation. Internal procedures and working instructions is given to the Basque Environmental Inspectorate. (Annex I, Table 5)

2.2.3 Investigation of serious accidents, incidents and occurrences of non-compliance

The Member States should ensure that the investigation of serious accidents, incidents and occurrences of non-compliance with EC legislation is carried out by the relevant authority in order to clarify the causes, mitigate or remedy the impacts, determine action to be taken, enable enforcement action and ensure that the operator takes appropriate follow-up actions.

All the countries are investigating these incidents. (Annex I, Table 6) In Germany the plan for inspections covers different kind of environmental inspections and the frequencies for the inspections are based on risk, environmental impact, size of the installation and complaints. In the plan there are also the measures of the inspections, documentation of the inspections and cooperation with other authorities described.

Two countries, Croatia and Slovenia, have described what kind of measures can be taken and how the person or legal person that causes environmental pollution is responsible for it.

In the Environmental Protection Act of Croatia (Article 51) it is stipulated (Annex I, Table 6):

- "1. A natural or legal person having caused environmental pollution by its activity or lack of activity shall undertake measures envisaged by Environmental Emergency Plan without delay, i.e. shall undertake all other measures necessary for reducing environmental damage or preventing the creation of any further environmental risks, threats or damage.
2. The natural or legal person having caused environmental pollution covers all the expenses related to measures for mitigating pollution threats, in accordance with the present Law and other regulations.
3. The natural or legal person as referred to in paragraph 1 of the present Article shall, without delay, inform the environmental protection inspector or another relevant inspector of an environmental risk or threat.
4. The natural or legal person as referred to in paragraph 1 of the present Article shall inform the public of the environmental pollution caused and of the protection measures to be undertaken."

In the Environmental Protection Act of Slovenia it is stipulated:

"If the inspector during inspection finds that the installation does not operate according to the provisions of the law or the permit, he/she can issue a decision with a time limit for correction of these irregularities. He/she can order additional environmental monitoring and in special cases of non-compliance also temporary cease for use of materials, dangerous substances or cease of operating of installation. Inspector can collect information by using all necessary measures as: inspection of buildings, installations, storage places, check business books and other records, take samples, to clarify the causes of the event and its impact on the environment. Inspector can also take other actions to mitigate the environmental impact. The inspector can use expert knowledge or expertise provided by institutions or private companies outside the public administration."

2.2.4 Risks and environmental impacts of emission

The project tried to find out how the risks and environmental impacts were taken into account in the plans of inspection. (Annex I, Table 7)

Croatia has a database that contain the data of risk installations. This data as well as previous accidents/incidents in these installations is taken into account in annual inspection planning.

In England & Wales the operator has to complete an assessment of his releases and submit this with his application for a permit. This is known as an OPRA assessment (Operator Performance and Risk Appraisal). The Environment Agency Officer who assesses the application and writes the permit also writes a decision document that describes why certain conditions have been included in the permit. The OPRA assessment and the decision document are used to produce a Compliance Assessment Plan (CAP) that includes inspection and major audit frequencies etc. Also in Finland risk assessments are required in the applications for permits and are taken into consideration in the permit procedure. Even in the compliance monitoring of the permits they are considered.

In Germany frequencies for these inspections are based on risk, environmental impact, size of the installation, and complaints. Usually the emission limit values cover the higher emissions during start-up and shut-down of an installation. The scale of the inspection depends on the constructed installation and the risk assessment of the special installation. In Portugal the in-

spection plan also focus on industrial installations which are traditionally polluters and which repeatedly infringe the environmental law.

In Slovenia the plans of environmental inspections are prepared by taking into account priorities. One of those priorities are the environmental impacts of emissions. In Spain (Basque Country) routine inspections are planned taking into account a risk-based approach. Sites are classified according to the environmental risk and this classification is related to the inspection frequency and intensity. Annual inspection programs are elaborated considering the incident and complaint database of the inspection service. (Annex I, Table 7)

2.3 Definition of incidental releases

2.3.1 Existence of definition of incidental releases

In general there is no definition of incidental releases in the environmental legislation of the countries (Annex I, Table 8). In this project already in the ToR we defined incidental releases as "releases that can e.g. be related to malfunctions in processes or treatment plants or alternatively they can depend on the human factor". This project was not dealing with major accidents according to the Seveso Directive but it focuses on small incidental releases which altogether can be a reason to exceeding the emission limit values.

In the seminar the participants agreed to the following definition suggested by Finland: "An emission, that shall mean the direct or indirect release of substances, vibrations, heat or noise, which is quantitatively or qualitatively exceptional, caused by an exceptional situation and there is a potential of environmental harm. The emission shall be released from individual or diffuse sources in the installation into the air, water or land." In this project this definition covers only incidental releases.

Scotland has a definition of incidents in their IPPC permits which means any of the following situations:

"Where an accident occurs which has caused or may have the potential to cause pollution;
Where any malfunction, breakdown or failure of plant or techniques is detected which has caused or may have the potential to cause pollution;
Where any substance, vibration, heat or noise specified in any Condition of this Permit is detected in an emission from a source not authorised by a Condition of this Permit and in a quantity which may cause pollution;
Where an emission of any pollutant not authorised to be released under any Condition of this Permit is detected;
Where an emission of any substance, vibration, heat or noise is detected that has exceeded, or is likely to exceed, or has caused, or is likely to cause to be exceeded any limit on emissions specified in a Condition of this Permit."

Slovenia has a definition of an industrial accident which is an event developed in the operation of the installation and is out of control. This can occur during production, usage, storage, loading or unloading of goods or transport and can lead to harm to life or health of human beings, animals, cultural heritage or the environment.

The definition is not written in an official document in Spain (Basque Country) but it is organised in the way that incidental releases are considered to be all the accidents that are not covered under the transposition and further modifications of the Seveso Directive.

Sweden answered that there is not a definition of incidental releases in Sweden, however, incidental releases are included in the limit values in the permit condition. When the permit conditions are exceeded this is judged as non-compliance.

2.3.2 Difficulties of the definition of incidental releases

In general the countries answered that there are no difficulties (Annex I, Table 9). Portugal, however, replied that the main difficulty is precisely the fact that the legislation does not include any definition.

Scotland answered that there are difficulties mainly in scope and thresholds to be applied when assessing an incident.

2.3.3 Differences between the definition of incidental releases and the definition of accidents (Seveso)

This was a very difficult question due to that most of the countries have no definition of small scale incidental releases. Instead, several countries replied how they have transposed the definition of accidents of the Seveso II Directive. (Annex I, Table 10)

England & Wales answered that the definition of the Seveso Directive refers to "uncontrolled developments". Their definition of "fugitive" releases includes anything that is not specifically allowed in the permit. For example, releases when pipes are emptied during routine maintenance work, which are controlled and deliberate.

Germany pointed out that the term "significantly affecting the environment" is not defined in the IPPC Directive. To ensure uniformity of the legal order it is fundamentally necessary to provide a standardized definition for standardized terms also in EU law. For the greatest possible degree of coherence within European legal order, ensuring uniformity of the definitions and application of EU legal terms is considered best practise in Germany.

One of the definitions of bigger accidents was given by Romania:

"Seveso accidents shall mean a major emission of one or more harmful substances which significantly affect the environment, namely:

- permanent or long-term damage to terrestrial habitats
- significant or long-term damage to freshwater and marine habitats
- significant damage to an aquifer or underground water."

Slovakia replied that Seveso accidents mean the excessive emissions of one or more harmful substances, it can occur during fire, explosion etc., and it can cause serious danger for human life, health, the environment or the fortune of the operator. (Annex I, Table 10)

2.3.4 Acceptability of incidental releases

Four countries **take always action** toward incidental releases; DK, IT, LV and RO. In addition, Poland answered that in general the authority always takes action. (Annex I, Table 10)

Most of the countries are not taking immediate action. England & Wales has an enforcement and prosecution policy which is used to decide whether or not to take action, depending on the significance of the release. They assess every breach of ELVs and categorise according to their own classification system. The minimum action that is taken is the issue of a written warning. Finland takes no action if the releases do not exceed the limit values and no detectable damage is caused. In Scotland the level of action taken is variable and depends on the impact or severity of release and contributing factors to the release, e.g. negligence etc. The type and nature of action will also be dependent on Scottish EPA enforcement policy. In Slovakia there is some tolerance, that depends on the amount of released emission and on the influence on the environment.

Spain (Basque Country) replied that they work in coordination with the Civil Protection Unit. All the incidents with environmental potential effects are communicated to their inspectorate. Then the incident is evaluated according to the magnitude, severity, risk and urgency. They take action in those situations that there is a risk for the environment or public health, even if it is low. In Sweden incidental releases are included in the limit values in the conditions. When the conditions are exceeded this is judged as non-compliance.

Sweden answered that there is not a definition of incidental releases in Sweden however incidental releases are included in the limit values in the permit condition. When the permit conditions are exceeded this is judged as non-compliance and actions are taken accordingly. (Annex I, Table 11)

Half of the countries replied that they take action only when the ELVs are exceeded and Finland said that it is usually the case. Croatia said measures or actions are taken also in cases when complaints are obtained and when inspector assess that extra measures or actions are needed. England & Wales replied that sometimes they take action when the ELV has not been exceeded, e.g. when an incidental releases occurs from a point where there is no ELV in the permit. At other times they will not take serious action when an ELV has been exceeded if there is a good reason and the consequences of the breach are minor.

Portugal answered that the inspectorate's intervention is decided in a case by case basis. Slovenia said that in case of incidental releases, which cannot be understood as industrial accidents, the operator has to take all adequate measures to mitigate the environmental impacts of releases. Spain (Basque Country) replied that action is taken when there is a risk for the environment or the public health even if the ELVs are not exceeded. Sweden replied that it depends on the severity of the incident and to what extent the ELVs cover the incident. (Annex I, Table 12)

Most of the countries replied 'no' to the question "Do you take action only when the treatment plant cannot treat the amount?" and they had different reasons for it. England & Wales replied that exceeding the treatment plant capacity is only one type of incidental release. Finland said that action is taken when the risk is big even if no effects have been reported. Sweden answered that it has not necessarily anything to do with a treatment plant. (Annex I, Table 13)

Half of the countries notified that there is a different acceptability of incidental releases depending on the environmental circumstances (HR, DE, IT, LV, RO, SI and SE) and the rest of the countries replied 'no'. Denmark said that based at a sort of risk analysis or EIA the effort can be very different. England & Wales replied that they consider the environmental consequences as part of their enforcement and prosecution policy. (Annex I, Table 14)

In Finland the environmental consequences should be assessed and the environmental quality norms should not be exceeded and of course no harm to people should be allowed. Romania replied that each incident is evaluated to estimate the risk to the environment and population. (Annex I, Table 14)

2.3.5 The coverage of the emission limit values

Eleven countries (EN&W, DE, FI, IT, LV, PT, RO, SK, SI, ES and SE) replied that the ELVs cover the releases from both start-up and shut-down of an installation. England & Wales replied that unless specified in the permit the ELV covers all operation. Germany answered that the ELVs usually cover the start-up and shut-down of an installation. However, Italy said that limit values cover only normal releases and that in the IPPC authorisation the technical conditions for the start-up and shut-down of an installation are specified. (Annex I, Tables 15–17)

Slovenia answered that in case where the emissions are higher due to start-up or shut-down and the cause of the higher emission cannot be avoided they are covered by necessary conditions in the permit. However, unexpected incidental releases are not covered. (Annex I, Tables 15–17)

Four countries (EN&W, DE, LV and SK) replied that they have special ELVs for emissions from start-ups and shut-downs. Additionally, England & Wales, Finland, Portugal and Scotland replied that only in limited cases they have special ELVs. Scotland notified that they occasionally can have a special ELV when the release mentioned is predictable and exceeds the normal ELV. (Annex I, Tables 18–19)

In Sweden it is a common policy not to have special ELVs for start-ups and shut-downs etc. Conditions are normally set as monthly or annual averages which can incorporate variations in emissions more easily than conditions with shorter averaging periods can. Conditions can be set as limit values which are never to be broken. There is however an alternative or additional way of setting limit values, so called trigger values. If such a limit value is exceeded, the operator has to take measures to ensure that the trigger value is not exceeded in the future. If such measures are not taken, the competent authority can take legal action. When there are directives with limit values these regulations are transposed into ordinances. If there is a need to regulate e.g. certain processes, this is done by setting conditions stipulating measures or actions to be taken including that the competent authority has to be notified in advance of shut-downs.

2.4 Summary of the issues concerning legal background

- All the countries have implemented the IPPC Directive as such and Croatia is on its way to implement it.
- According to the RMCEI most of the Member States and Croatia have plans for inspection.
- In most countries, no provisions exist for investigation of incidents.
- Definition of incidental release given by Finland and Scotland.
- Two good examples from Croatia and Slovenia concerning what kind of measures can be taken by the inspector and the responsibilities of the operator.

3 AUTHORITIES AND OTHER ORGANISATIONS

3.1 Competent authorities

This section deals with the national competent authorities and other organisations that are responsible for issuing IPPC permits or managing or mitigating incidental releases. The most common situation is that the state environmental authorities are responsible for issuing the environmental permits for bigger installations and the local authorities for smaller installations. (Annex I, Table 20)

In Croatia the Ministry of Environmental Protection, Physical Planning and Construction is the competent authority for issuing all IPPC permits. In England & Wales the Environment Agency is competent for approximately 3,200 installations (2,000 industrial and 1,200 agricultural) and the local authorities for approximately 200 of the smaller installations. The competent authority covers all aspects – permitting compliance and enforcement. In Finland there are two state authorities competent for issuing permits for the approximately 700 IPPC installations: the state permit authorities and the regional environment centres.

In Germany only one authority is the competent authority in Schleswig-Holstein, namely the governmental environmental agency, and in Hamburg it is the authority for urban development and the environment. Italy replied that both national and regional authorities are involved in the issuing of IPPC permits, depending on the size of the plants. In Poland the Voivode and the head of the Poviast Administration are the competent authorities, and in Slovakia it is the Inspectorate for the Environment that is responsible for issuing the environmental permits. In Spain (Basque Country) the Basque Government is responsible for granting the permits. In Sweden the Environmental Courts are responsible for issuing permits for large IPPC installations and the county administrative boards for small IPPC installations.

In many countries the same authorities responsible for monitoring, compliance monitoring and inspection are responsible for permit procedures as well (HR, DK, EN & W, ES, FI partly (the regional environmental centres), DE, IT partly, RO, SCT and SE). (Annex I, Table 21)

In Finland the regional environment centres are responsible for monitoring the conditions of the permits issued by themselves and the Permit Authorities. In Italy the Environmental Agency is responsible for monitoring, compliance monitoring and partly also for enforcement, whereas enforcement and momentary stoppage of a plant or process is the task of regional authorities.

In Latvia the operator has a great deal of responsibility concerning monitoring, compliance monitoring and enforcement as long as he follows the regulations issued by the State Environmental Services. In Poland the Voivodeship Inspector for Environmental Protection is responsible for every step in the inspection procedure.

The environmental authorities are usually responsible for a momentary stoppage of a plant – only in Latvia and Slovenia is it the responsibility of the operator. In Portugal both the environmental authority and the operator are liable for it. (Annex I, Table 21)

England & Wales, Italy and Sweden replied that the authority can order momentary stoppage of an installation or process in every case.

Examples where an authority can order momentary stoppages of a plant or process:

- Depending on the environmental permit (DK);
- Risk of causing harm to human health or the environment (FI);
- When the ELV:s are exceeded and there is a risk of harm (DE);
- When an activity poses a risk to human health or causes deterioration of the environment (PL);
- Evaluated on a case-by-case basis by IGAOT (PT); and
- SEPA can suspend a permit in the event of imminent risk (SCT).

3.2 Cooperation between authorities

3.2.1 Environmental authorities' cooperation with other authorities

The environmental authorities in all countries cooperate with other authorities in cases of different kind of incidental releases. Denmark replied that the risk of damage or significant pollution to the environment will be a typical case which requires assistance from the police, the firebrigade or other authorities. (Annex I, Table 23)

England & Wales replied that they cooperate with the Health and Safety Executive when the incidental release has caused harm to any of the workers. They cooperate with the police and fire brigade if there is a major accident. Sweden answered that depending on what has happened, there is cooperation with other responsible authorities, such as those with responsibility e.g. those for labour and health issues and rescue services. Romania replied that cooperation with other authorities takes place in all cases where there are problems besides just environmental issues ones, that is, if there are other specific problems such as risk to public health or building safety, or a risk from hazardous substances.

In Germany there is cooperation, for example with the water pollution authority, the soil protection authority, or the occupational health and safety authority. In Slovakia there is cooperation with, for example the River Basin Authority. Poland answered that they cooperate, for example when operational support is needed on the site or when the authority is not competent to carry out an investigation or research actions.

According to Table 1, all 15 countries cooperate both with the police and the fire brigade. Thirteen countries also cooperate with the safety authority and seven countries with the chemical inspection authority. (Annex I, Table 24)

TABLE 1. Cooperation between authorities

	Chemical inspection authority	Safety authority	Fire brigade	Police
Croatia	x	x	x	x
Denmark	x	x	x	x
England & Wales		x	x	x
Finland	x	x	x	x
Germany	x	x	x	x
Italy		x	x	x
Latvia			x	x
Poland			x	x
Portugal			x	x
Romania	x	x	x	x
Scotland	-	x	x	x
Slovakia			x	x
Slovenia	x	x	x	x
Spain		x	x	x
Sweden	x	x	x	x

3.2.2 Type of cooperation

All countries except Croatia have cooperation both for operational purposes and for the investigation of incidental releases (Table 2). Altogether 10 countries cooperate even in the planning for the prevention of incidental releases. Additionally, Denmark, Finland, Germany, Poland and Sweden are doing research and development together with other organisations and perhaps also with the operators of the installations. (Annex I, Table 25)

TABLE 2. Type of cooperation

	Prevention of incidental releases e.g. by planning	Operational	Investigation	Research and development
Croatia	x			
Denmark	x	x	x	x
England & Wales		x	x	
Finland	x	x	x	x
Germany	x	x	x	x
Italy	x	x	x	
Latvia	x	x	x	
Poland	x	x	x	x
Portugal		x	x	
Romania	x	x	x	
Scotland	x	x	x	
Slovakia		x	x	
Slovenia		x	x	
Spain		x	x	
Sweden	x	x	x	x

3.2.3 Transboundary cooperation

Only Denmark, England & Wales, Portugal and Scotland replied that they do not have any transboundary cooperation on these issues. The other countries answered yes and the following conventions were mentioned: Convention on Long-range Transboundary Air Pollution (LRTAP), The Espoo Convention (ECE), the Nordic Convention on environmental protection, the Helsinki Convention (HELCOM), the Danube Convention and cooperation under international treaties or multilateral conventions.

3.3 Summary of issues concerning authorities and other organisations

- All countries have environmental authorities responsible for monitoring and compliance monitoring.
- In some cases enforcement is the responsibility of a different authority.
- Momentary stoppage is usually ordered by the environmental authority – only in three countries is the operator responsible for it.
- All countries cooperate with fire brigades and the police.
- 11 countries cooperate with safety brigades and 7 with chemical safety authorities.
- Cooperation is of an operational or investigative nature in most cases.
- 9 countries cooperate to prevent incidental releases and 5 do research and development.
- Most of the countries also have transboundary cooperation.

4 INCIDENTAL RELEASES IN THE PERMIT PROCEDURE

4.1 Approach and guidance

According to the replies, six of the 15 countries have a specific approach for the permit procedure concerning installations with a high risk of incidental releases. In four of these countries (DE, IT, RO and SE) the approach is applied only to Seveso II installations; they have to write a safety report according to the Seveso II Directive. In Sweden every permit has to include safety information and there are legal request that appropriate permit conditions on environmental risks and on safety risks has to be decided. In Scotland the approach taken is to do an assessment of accidental releases and to use Operator Performance Assessment (OPA) systems to identify high risk sites. (Annex I, Table 27)

In the case of an incidental release, guidance is provided in ten countries to the operator for reporting the incident to the environmental authorities. Usually the guidance gives information on how to contact the right authority and on what, when and how to report the release. In Scotland the reporting practice is specified in the permit as follows (Annex I, Table 28):

"2.4 Incidents

2.4.1 In the event of an incident, the Operator shall take all necessary measures to prevent, or where that is not practicable to reduce, emissions from the Permitted Installation. All necessary measures to limit the consequences for the environment of any emissions from the Permitted Installation shall be taken, so far as reasonably practicable.

2.4.2 In the event of an incident, the Operator shall notify SEPA by telephone without delay. This notification shall include as far as practicable the information specified in Condition 2.4.3.

2.4.3 The Operator shall confirm any incident to SEPA in writing by first class post or fax by the next working day after identification of the incident. This confirmation shall include: the time and duration of the incident, the receiving environmental medium or media where there has been any emission as a result of the incident, an initial estimate of the quantity and composition of any emission, the measures taken to prevent or minimise any emission or further emission and a preliminary assessment of the cause of the incident.

2.4.4 Any incident notified to SEPA shall be investigated by the Operator, and a report of the investigation sent to SEPA. The report shall detail, as a minimum, the circumstances of the incident, an assessment of any harm to the environment and the steps taken by the Operator to bring the incident to an end. The report shall also set out proposals for remediation, where necessary, and for preventing a repetition of the incident."

There is guidance on management of the release for the authorities in six countries and for the operator in seven countries. Six countries indicated that they do not have any guidance concerning this issue (Annex I, Table 29). For the current situation on IPPC permitting in Croatia, see "Any further comments on the issues in Section 3", in Annex I, after Table 46.

4.2 Information to be submitted in permit application documents

Almost all of the countries require information in the permit application documents on preventing incidental releases. Most of them also require data on managing the releases, measures taken in the event of a release and actions taken after possible previous releases. Seven countries replied that the operators have to provide data on assessment of incidental releases. The information to be submitted is presented in Figure 2. (Annex I, Table 30)

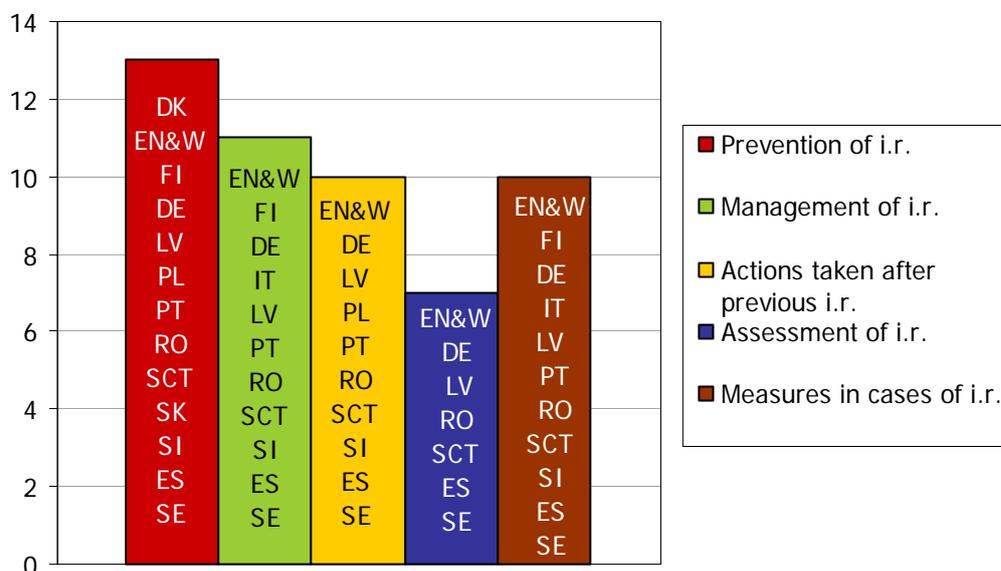


FIGURE 2. Information to be submitted in the permit application concerning the risk of incidental releases (Annex I, Table 30)

A risk analysis is required for the permit process in ten countries. Usually the analysis is required for installations at risk of significant releases, like Seveso II installations. In Finland and Scotland all IPPC installations, including Seveso II installations, have to submit a risk analysis in the application documents. In the risk analysis in Portugal, for example, the operator has to "analyse the use of dangerous substances, storage conditions, risk of fire and explosion, means of intervention in case of an accident and written procedures for emergency situations". (Annex I, Table 31)

4.3 Permit conditions on prevention and management of incidental releases

4.3.1 Examples of permit conditions for prevention of incidental releases

The project received good examples of different permit conditions already granted (Annex 1, Table 32). In the case of **prevention** of incidental releases Germany mentioned a good example:

"The operator has to initiate a comprehensive inspection of the installation by an authorised expert before the start-up of a process. This includes the requirements of the immission control act, the occupational health and safety as well as the requirement of an integrated monitoring system with a system audit. The audit consists of a document audit and an operational test".

Other examples of binding permit conditions come from Scotland, England & Wales and Germany:

"By [date six months after date of permit] the Operator shall prepare, implement and maintain an "Incident Prevention and Mitigation Plan".

"At least every [number] years, the Operator shall review the Incident Prevention and Mitigation Plan required under Condition x.y.z. Each review of the said Incident Prevention and Mitigation Plan shall be recorded and where the Operator makes any revisions to the said plan, said revisions shall be recorded." (Scotland)

"All liquids, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container." (England & Wales)

"An operator who handles with liquids with a hazardous potential has to fulfil the following requirements: 1. tank with double bottom, 2. collecting tray and 3. detection of leakage and spillage." (Germany)

Further examples regarding the same issue, but given as a general consideration (Annex I, Table 32):

"If defects and incidents in the process and purification equipments increase emissions or change them to more harmful, the permit holder must take actions to prevent emissions, possible damages and recurrence of them. The equipment and operation must be normalised immediately." (Finland)

"The operator has to implement a maintenance and survey plan to prevent spills, to control storages and to prevent that the spills reach the soil or water. They have to register all the maintenance operations and incidents. Compliance with the rules for the storage of chemical products." (Spain)

4.3.2 Examples of permit conditions for management of incidental releases

Examples of binding permit conditions with a view to better management and strengthening of the measures taken during and after a release come from England & Wales, Finland, Slovakia and Sweden (Annex I, Table 33).

"The operator shall:
maintain and implement an accident management plan;
review and record at least every 4 years or as soon as practicable after an accident, (whichever is the earlier) whether changes to the plan should be made;
make any appropriate changes to the plan identified by a review." (England & Wales)

"Abnormal and other waste waters which affects negatively the operation and efficiency of a waste water treatment plant must be conducted to a safety pool. If necessary, waste waters have to be treated before conducting back to the treatment plant or they have to be conducted to the plant with a so slight discharge that the operation of the waste water treatment plant is not affected harmfully." (Finland)

"The operator is obliged to train the employers for incidental releases once a year and to give evidence of it." (Slovakia)

"In case of a shut-down the operator has to notify the competent authority prior to the shut-down." (Sweden)

"In case of an incidental release, measures (specified which) have to be taken and monitoring (specified which) has to be done." (Sweden)

Examples of general permit considerations on the same issue are as follows (Annex 1, Table 33):

"There must always be a sufficient amount of absorption material available on site in case of accidents and incidents. Chemicals, fuels, and other harmful substances which have leaked into the environment must be collected immediately." (Finland)

"In case of malfunction of waste water treatment plant or at any breakdown in technology, which cause exceeding pollution of industrial waste water, the operator has to start immediately performing measures to limit or prevent the environmental impacts." (Slovenia)

4.3.3 Examples of permit conditions for risk assessment of incidental releases

The above Scottish and Swedish examples of different permit conditions deal partly also with risk assessment. Finland and Germany provided some additional examples (Annex I, Table 34).

"Until the end of the year 2008 a risk management plan has to be completed with a clarification of storage and use of harmful chemicals and if harmful substances are formed in the processes or are released to the environment, particularly taking into account the harmful substances mentioned in the appendix 1 of the Environmental Protection Decree." (Finland, binding condition)

"The risk management plan must be kept updated. The risks, preventing actions and changes in the risk management plan must be reported to the authorities annually by the end of February in context of the annual reporting." (Finland, general consideration)

In Spain there is no clear statement that obliges operators to perform a risk assessment, but they have to do it in order to prepare the prevention plan. There is also an experimental certifiable norm under review for environmental risk assessment of a site in the event of an accident. (Annex I, Table 34)

4.3.4 Emission limit values (ELVs)

Permit conditions may also occasionally include short-term emission limit values, which allow an installation to release higher emissions, for example, during start-up and shut-down or during some malfunction in the flue gas purification plant. Six countries replied that they do not use such conditions, that is, incidental releases are included in the permit conditions. However, seven Member States have short-term ELVs in use, at least to some extent (Annex I, Table 35). It is possible to decide on supplementary conditions by appropriate other parameters and by measures and actions to be taken by the operator. In Sweden good practise is to set long-term ELVs (e.g. monthly or annual average) which covers both the variations of the emission during normal operation of the installation in question and incidental releases as

defined in the ToR of the project. When such conditions are exceeded this is judged as non-compliance.

In England & Wales, Germany and Slovenia the short-term ELVs are related to activities under the Waste Incineration Directive. In Scotland the permits may allow exceedances due to abnormal weather conditions. The wording of the German reply is (Annex 1, Table 35):

"The emission limits shall be established in the licensing notice or in a subsequent order as or example permissible fibre dust, odorous substances or mass concentrations of air pollutants in waste gas provided that:

- a) any daily mean values do not exceed the established concentration level and
- b) any half-hourly mean values do not exceed twice the established concentration level.

Special arrangement shall be drawn up for such processes during which values exceeding twice the emission limit cannot be avoided. Such processes during which:

- a waste-gas purification facility has to be avoided for safety reasons (danger of deflagration, clogging-up or corrosion,
- a waste-gas purification facility is not fully effective because of insufficient waste-gas throughput or
- waste-gas collection and purification is not feasible or only insufficiently feasible as receptacles are charged or emptied during intermittent manufacturing processes."

4.3.5 Techniques to be used

Techniques are included in the permit conditions in ten countries. In Sweden the permits sometimes require, for example, bio-treatment or electrostatic precipitators. Usually the permit conditions do not set any specific techniques to be used, but they can be mentioned as examples (Germany). In some countries the operator is responsible for finding out proper techniques in order to achieve the ELVs set in the permit in accordance with BAT (Finland, Slovakia). An example of such a condition comes from Slovakia (Annex I, Table 36):

"The operator is obliged to find out, to design and to installate the appropriate technical equipment for taking hold of the organical substances released from the chimney during the processing and it must be in accordance with BAT."

4.3.6 Notification of the releases

In 11 cases of 15 there are permit conditions for the notification of incidental releases, only Denmark, Italy and Sweden replied that they do not have any. Sweden replied that the operator must give a notification of releases because they have a legislative regulation on obligatory notification of releases including incidental ones. The following conditions are included in every permit in England & Wales (Annex I, Table 37):

"4.3 Notifications

4.3.1. The Agency shall be notified without delay following the detection of:

- (a) any malfunction, breakdown or failure of equipment or techniques, accident, or fugitive emission which has caused, is causing or may cause significant pollution;
- (b) the breach of a limit specified in the permit;
- (c) any significant adverse environmental effects.

4.3.2. (option a) Written confirmation of actual or potential pollution incidents and breaches of emission limits shall be submitted within 24 hours.

Drafting note: You should use option a above, or b below, as appropriate.

4.3.2. (option b) Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule x to this permit within the time period specified in that schedule."

In Germany, the wording of the condition for Seveso II installations is as follows:

"So called D1 [...] incidental releases have to be reported to the administration if there is no impact outside the area of the plant, or no impact to the ground water, but the neighbour can notice the consequences of the incident and it seemed for him, that there is a danger (e.g. loud noises, flares, odour)."

A common type of a permit condition is that "the operator must immediately or within 24 hours report all incidents and abnormal situations to the environmental authority" (ES, FI, PL, PT, RO, SCT, SK; Annex I, Table 37).

Finland reported an additional condition considered to be good practice (Annex I, Table 38):

"For emergencies and accidents and incidents the operator must have the possibility to close internal safety systems, safety pools of tanks and bunkers and sewer systems or to conduct rain and cooling waters through safety pools or waste water treatment plants into the water course. Manufacturing processes and safety systems must be kept updated, supplied with sufficient alarm and measuring equipment and the staff must be trained for the use of them."

4.4 Best Available Techniques (BAT)

4.4.1 Usefulness of the BREFs

According to the replies, the Best Available Techniques Reference Documents (BREFs) are not useful for managing or assessing incidental releases in the permit procedure. Only four countries said that the BREFs are, at least to some extent, useful for preventing incidental releases. The main problem is that the BREFs are too generic and do not contain very much information on incidental releases. It seems that neither the risk analysis nor assessments are taken into account enough in the BREFs.

Sweden replied that "prevention of incidental releases is often quite site-specific and thus perhaps more a matter for permitting in the individual case than for the BREFs, which have a sector-level approach". Finland pointed out that "the BREFs are usually based on good average emission levels, but the risks of accidents are not taken into account. For instance, use of hazardous chemicals (e.g. liquid sulphur dioxide) can be considered as BAT, though there is, in principle, always the possibility of a Seveso-type disaster." (Annex I, Tables 39–41, 45, 46)

4.4.2 National technical guidance

National technical guidance is seen as useful to some extent for preventing, managing and assessing incidental releases. For example, in Slovakia the operator is obliged to provide guidance for incidental releases in which measures are included on how to take action and manage such situations. The Scottish opinion is that requirements to have risk-based systems and the H1 screening tool are useful. (Annex I, Tables 42–44)

4.5 Summary of permit procedure issues

- A specific approach for the permit procedure exists only in some countries and it is applied mainly to Seveso II installations, e.g. a safety report has to be written.
- Almost all the countries require that information on preventing incidental releases be included in the permit application.
- Several good permit examples are presented.
- The BREFs are not considered useful for managing or assessing incidental releases.

5 ENVIRONMENTAL RISK ANALYSIS/ASSESSMENT

One part of the project was to determine whether risks and consequences have been considered in the context of incidental releases in any country. According to the responses, it seems that in many countries the focus was on Seveso issues instead of on incidental releases, as Sweden commented in its response. Thus, the answers must be examined with this point of view kept in mind.

5.1 Methods for risk assessment

There are many national and international methods available for risk assessments (Figure 3). The risk assessment method Hazard and Operability (HAZOP) Study is widely recognized. Potential Problem Analysis (PPA) was well known in three countries. Latvia mentioned that in addition to HAZOP, they use other international methods such as Failure Modes and Effects Analysis (FMEA) and the 'What if' approach. Spain also uses international methods such as the 'What if' approach, historical analysis, FMEA, and failure/event tree analysis. This last method is mainly utilised by the chemical industry. Germany noted it uses three national methods: PAAG Studies, effects of malfunction analysis (Ausfalleffektanalyse), chain of events analysis (Fehlerbaumanalyse) and sequence of results analysis (Ereignis-Ablaufanalyse). In Slovakia only expert judgements are used instead of a systematic analysis for risk assessment. In Spain there is an 'experimental norm for environmental risk assessment' under review. (Annex I, Table 47)

A consequence analysis should always be included in a risk assessment. Impacts of an incident are assessed in eleven countries by experts. Nine countries conduct an environmental impact assesment (EN&W, FI, LV, PL, PT, RO, SCT, SK and SI). (Annex I, Table 48)

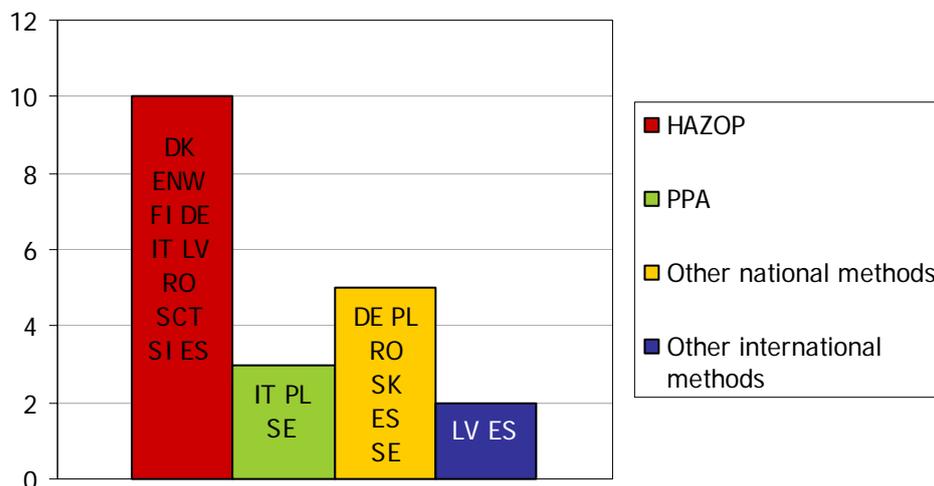


FIGURE 3. Risk assessment methods used (Annex I, Table 47)

5.2 Guidance and documentation

Most of the countries have some form of guidance or quality requirements for documentation of risk analysis. England & Wales have guidance on risk assessments for IPPC applicants. In Germany guidance can be found in the national legislation, the "executorial aid for the statutory order on hazardous incidents" (Vollzugshilfe Störfallverordnung), and in Italy there is guidance in the Security Management System for Seveso installations and the Environmental Management System for IPPC installations. Poland noted that there is guidance for "increased-hazard" and "high-hazard establishment" in the Environmental Protection Act, and Romania has legislation for approval of the integrated permit procedure and also guidance on risk assessment. Sweden stated that within the permitting legislation and procedures there are legal requirements for the quality of the application and the safety reports. In Finland recommendations for the environmental risk analysis of incidental emissions have been published under a project on environmental risk analysis of incidental emissions (see Annex II of this report). Guidelines show what the environmental analysis should include and how the process of risk analysis should be performed. In Scotland the UK Technical Guidance: H1 Horizontal Guidance and ISO standards are used for risk analysis. Croatia, Denmark, Latvia, Portugal and Spain have no guidance or quality requirements for documenting risk analysis. (Annex I, Table 49)

5.3 Obligations

The countries varied in their responses concerning which installations must conduct risk assessments. Denmark, England and Wales, Italy, Latvia, Portugal and Scotland replied that all IPPC installations are obliged to conduct risk assessments. In Sweden, in accordance with legislation, risk assessments and safety reports have to be included in the application for all IPPC installations, and appropriate conditions concerning environmental risks and safety have to be set. In Finland all IPPC installations, in general, and, at least, all Seveso II installations have to conduct a risk assessment. In three other countries the same obligations concern Seveso II installations (DE, SI and SK). In Spain all the IPPC installations have to prepare a prevention plan, which means that they have to conduct a risk assessment in some way, but it is not defined how it should be done. Croatia noted that installations which fall under an obligation are mentioned in the Ordinance on Environmental Impact Assessment and the Environmental Protection Emergency Plan. (Annex I, Table 50)

In all countries the operators are responsible for carrying out risk assessments, except in Scotland where the authority is the responsible party. In Denmark all three actors (authority, operator and consultant) may conduct risk assessments. In Poland, the authority, and in Romania, the consultant is responsible for risk assessments along with the operator. (Annex I, Table 51)

5.4 Summary of environmental risk analysis

- HAZOP is a well-known risk assessment method, other methods (national and international) are also applied.
- Many countries use environmental impact assessments (EIA) and expert judgements as a consequence analysis.
- For IPPC installations there is some national guidance and they are often obliged to carry out risk assessments.
- Usually the operator carries out risk assessments, but sometimes a consultant or authority does.
- Finland has guidance for risk analysis of incidental releases.

6 ENVIRONMENTAL MANAGEMENT SYSTEMS

Environmental management systems (EMS), like the European eco-management and audit scheme (EMAS) and ISO 14001, are mainly voluntary tools in the 15 countries that took part in this project. Only England & Wales and Slovenia have made an EMS mandatory for IPPC installations. Additionally, in Spain only the hazardous waste managers are obliged to have a certified system. (Annex I, Table 53).

However, the legislation in seven countries recognises an EMS in the permit procedure. Some EMSs or all of them are recognised in the permit conditions only in five countries (EN&W, IT, PT, RO, SK). In England & Wales all permits include the following conditions (Annex I, Tables 52 and 54):

"1.1 General management

1.1.1 The activities shall be managed and operated:

- (a) in accordance with a management system, which identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents and non-conformances and those drawn to the attention of the operator as a result of complaints; and
- (b) by sufficient persons who are competent in respect of the responsibilities to be undertaken by them in connection with the operation of the activities.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained."

The EMSs do not have a significant role in the permit procedure concerning incidental releases, only in England & Wales is it clearly a part of the procedure. In FI, RO, SCT and SI the system serves as background material. Scotland highlighted the fact that "operators with formal EMS tend to have a better appreciation of the application process and normally have better information upon which to base the application". Nine countries indicated that an EMS has no role concerning permitting and incidental releases. Only in England and Wales does the operator's EMAS environmental statement have a role in the permit procedure concerning incidental releases. (Annex I, Tables 55 and 58)

The exchange of Information between the enforcement authority and the EMAS competent body is quite normal practice. In two countries (Romania and Slovakia) it consists of a written procedure; in Slovakia the enforcement authority has to send a written report to the competent body concerning the environmental situation at the installation. It is more common that the authority informs the competent body only occasionally (eight replies). Usually, notification is connected to situations of serious impacts or risks to the environment and/or an exceedance of the ELVs (Finland and Spain). The Scottish practice is that information is provided only by request. In England & Wales, the competent body asks the Environment Agency for comments on the operator's performance. If the Environment Agency has prosecuted the operator for any environmental offences, then the operator may be de-registered. (Annex I, Table 56)

Cooperation between the enforcement authority and EMS auditors happens in a few countries according to the replies (FI, IT, RO, SCT). In ten countries such cooperation does not exist. (Annex I, Table 57)

7 MONITORING , REPORTING AND RECORD KEEPING

7.1 Determination of incidental releases

Thirteen countries indicated that they are using measurements for quantifying incidental releases, if it is necessary or possible. However, for instance, in Scotland it happens rarely. In England & Wales and Portugal the operator is required to quantify a release when an incident is reported. Usually, measurements depend on the situation and the quality of the release. Denmark noted that watercourse samples can be taken, and Slovakia said that analyses are made, for example, of water, air and fish die-offs. It can be possible to monitor incidental releases in installations where there is already continuous monitoring or self-monitoring of pollutants (RO, SI and DE). Additionally, air and water quality monitoring networks can be used to evaluate the impact on the environment (Spain). In Germany an incidental release can be measured when monitoring equipment is already installed in the outlet. Latvia does not measure incidental releases. (Annex I, Table 59)

Calculations are often used to quantify incidental releases by the operators. Computer-based models are also used to estimate the effects on the environment (Denmark). In Scotland estimations or calculations are more prevalent due to the transitory nature of incidental releases. Only Croatia and Slovakia replied that they do not use any calculations for the determination of incidental releases. (Annex I, Table 60)

7.2 Reporting system

Nine countries replied there is no threshold for reporting incidental releases to the authority. However, in some countries the releases that should be reported must be significant (England & Wales) or must exceed the old threshold set by authorities (Romania). In Germany, for example, a leakage of 50 litres of a chemical hazardous to water must be reported. In Sweden, all incidental releases have to be reported to the authority in accordance to legislative requirements on the operator. (Annex I, Table 61)

In most countries incidental releases must be reported immediately to the authorities. Portugal has a time limit of 24 hours for reporting, whereas Denmark has no time limit at all. In Poland the time limit depends on the installation and the permit conditions. Scotland answered that incidental releases have to be reported immediately, then confirmed within 24 hours, and a full report must be sent within 14 days. If an incidental release happens in Slovenia and if it exceeds pollution levels, the operator has to report it immediately to the environmental inspectorate. In Spain releases with an impact on the environment have to be reported immediately and low-risk ones in 24 hours. Nevertheless, operators do not usually meet this. Sweden answered that the time limit varies with the competent authority. In addition to the reporting or notification request, in accordance with the Environmental Code, there are strict reporting requirements in accordance with other regulations such as those concerning safety, the work environment and rescue services. The different competent authorities cooperate. (Annex I, Table 62)

Contact between the operator and the authority concerning the reporting is usually by e-mail, phone or fax. In Denmark reporting is done via personal contact, for example, by cellular phone, and in Portugal, also by regular mail. The operator can use the national telephone number for the Environment Agency or agree with the local inspector to use other

arrangements (England & Wales). In Finland emission data can be transferred from an operator to the authority over the Internet. In Poland and Scotland the reporting system is specified in the permit conditions. In Spain, if the release is immediate, the operator has to report it by phone or fax to the emergency line of the Basque Government. In Sweden the reporting procedure varies. (Annex I, Table 63)

In most countries the incidental releases are considered to be part of the emissions reported to the EU (EPER/E-PRTR, Seveso II), except in HR, DK, IT, PL or ES. Finland reports them only when they are included in the total emissions, as they normally are. (Annex I, Table 64)

The authorities are on duty 24 hours per day to receive information on incidental releases in ten countries, but in Denmark and Slovenia information can be received only during office hours. In Finland, in general, the authorities are on duty only during office hours, but depending on the occasion, also at other times, but there is no obligation for this. (Annex I, Table 65)

7.3 Record-keeping

Usually both the authority and the operator keep records of incidental releases, but in two countries only the operator does (Denmark, Slovenia). In Scotland there is a public register, where all reports made should be placed. Also, the Scottish Environment Protection Agency (SEPA) has an internal events database. The record-keeping of near misses (accidents which almost have taken place) varies. Operators keep records of near misses in most of the countries. However, there are no records of near misses in Croatia, Denmark and Poland. In Germany several operators have voluntarily installed a record-keeping system for near misses. Furthermore, the operators are obliged to analyse accidents or incidents which have almost taken place and which are relevant to their installation. Spain indicated that there is not a lot of information on near misses. (Annex I, Tables 66 and 67)

7.4 Monitoring system

The near misses are monitored in some countries, but not in HR, DK, FI, PL, PT, SCT, SI or ES. In Italy monitoring is carried out if necessary, and in England & Wales, during inspections. Germany, Latvia and Romania answered that near misses are monitored in the context of self-monitoring. (Annex I, Table 68)

Countries vary in whether incidental releases are discussed with the authorities. In Scotland discussions on the incidental releases are a part of routine follow-ups to incident reports. Italy and Portugal also discuss them with the supervision authorities, and Sweden does when it is appropriate. Sometimes the obligation is set by the legislation, as in Slovakia. In England & Wales and Romania the authorities must be notified of all incidental releases and in Finland all incidental releases are registered. Spain answered that operators have to send a report to the Environment and Soil Planning Department and discuss what is needed. Operators in HR, DK, DE, LV, PL and SI do not always discuss incidental releases with the supervision authorities. (Annex I, Table 69)

The near misses are always discussed with the supervision authorities only in Italy and Romania (during the permit procedure or when it is necessary to review the permit). In Sweden the near misses are discussed when it is considered to be appropriate. (Annex I, Table 70)

Ten countries answered that they monitor the environmental impacts of the incidental releases. The Environment Agency in England & Wales has monitored the releases close to some problem sites such as cement kilns. The Environment Agency or the local authority will monitor when there is a risk of breaching an air quality standard. In Finland, principally the operator monitors according to the permit conditions and the authority controls measurements in serious cases. Poland takes samples, for example, of polluted soil or water. In Portugal, if it is considered important, the Environmental and Territorial Planning General Inspectorate (IGAOT) can monitor the emissions caused by the environmental incident. If possible, the environmental impacts are monitored in Scotland at the time of the release, otherwise calculations or estimations are used. In Slovakia the quality of water in rivers is analysed; for air emissions, some of the operators have an automatic measuring system. Spain, Sweden and Italy answered that they monitor, but they have not specified how. Latvia consider actions on a case-by-case basis. (Annex I, Table 71)

In HR, DK, DE, RO and SI the environmental impacts of the incidental releases are not monitored. Germany emphasized that incidental releases will be monitored close to some problem sites when there is an emission control, but usually not. If the incident involves a leak, emissions cannot be measured. Usually the operator has to calculate incidental and accidental releases and accidental releases. (Annex I, Table 71)

An operator is responsible for assessing the environmental impacts of the incidental releases in eight countries, while in Denmark and Romania the authority is responsible, and in Italy, the Environmental Agency. In Poland, Portugal and Spain both the operator and the authority are responsible for assessing the environmental impacts. (Annex I, Table 72)

7.5 Summary of monitoring, reporting and record-keeping

- Incidental releases are partly measured and, to some extent, also calculated.
- The system of reporting varies country by country.
- Both authorities and operators keep records of incidental releases, and the incidents are often discussed with supervision authorities.
- Only operators keep records of near misses, which are not usually discussed with authorities.
- Operators are responsible for environmental impact assessments.

8 INSPECTION AND ENFORCEMENT

8.1 Incidental releases

The inspection of incidental releases can encumber the authorities to some extent in all countries. Only Portugal could not answer the question because a survey of inspections had not been made yet. Scotland answered that inspections of incidental releases is a very reactive workload, which can interfere with planned work. In Slovakia inspections of incidental releases cover about 30% of all inspections. Spain indicated that they receive around 400 calls annually, but only 30% of them require some action. On the other hand, Romania replied that the number of inspections of incidental releases is rather small in comparison with the total number of inspections. Sometimes the inspection work depends on complaints made, because inspections of incidental releases are mainly based on these (Croatia). In Germany inspections of incidental releases depend on the kind of installation and on the time for inspections and discussions with the operator. England & Wales answered that all incidental releases will be investigated. (Annex I, Table 73)

One of the questions in the questionnaire asked in which category of industrial activities (Annex 1 of the IPPC Directive) do incidental releases occur most frequently. From the responses, it can be seen that not all of the respondents understood the question. However, some replies probably illustrate the situation in Europe quite well. England & Wales indicated that a detailed breakdown of industrial performance for 2005 can be found in their "Spotlight on business. Environmental performance" report. In 2006 they recorded 1962 accidental releases. These ranged from the very minor to the very significant. Nearly 96% were in the more minor categories. Waste incineration accounted for 30% of the total. Most of these were observations from continuous monitoring equipment, measuring many breaches of half-hourly limits. The chemical industry accounted for 13%, the metals industry for 12%, the food and drink industry for 10% and combustion plants, 5%. The rest were split amongst other sectors. In Germany the percentage distribution was the following: chemical industry, 46%; energy industry, 13%; storage, 6%; production of pulp and paper, 6%; production and processing metals, 6%; and waste management, 3%. These figures concerned only Seveso II Installations. In Italy chemical installations cause the most incidental releases. The order of magnitude in Romania is the energy industry, chemical industry, industrial activities of pulp and paper production, and metals processing. Croatia, Finland, Latvia, Portugal and Sweden had no statistics for this information. (Annex I, Table 74)

Categorization of incidental releases was not widespread. Spain categorized the incidental releases according to the urgency and impact or risk and Slovakia according to the type of substance. England & Wales have a detailed Incident Classification Scheme on their website. Most of the countries do not categorize the incidental releases (HR, DK, FI, LV, PL, PT, RO, SCT and SI). Germany does it partly but only for accidents. (Annex I, Table 75)

Technical problems are considered to be the most common reason for the incidental releases (Figure 4). The second most common reason according to the respondents is a human mistake. Natural phenomena had two positive replies, and economic reasons, one. (Annex I, Table 77)

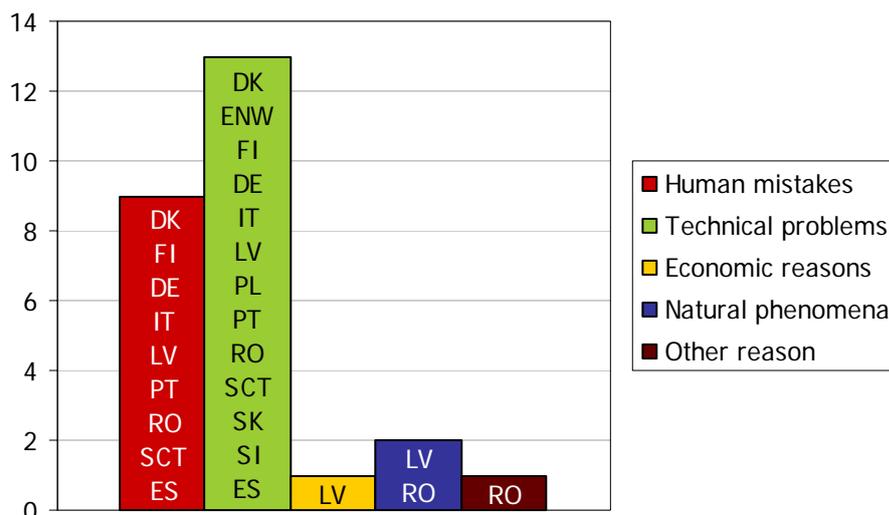


FIGURE 4. Most common reasons for incidental releases according to the questionnaire (Annex I, Table 77)

8.2 Minimum criteria for environmental inspections (MCEI)

The first question of this section concerning minimum criteria for environmental inspections was "How are non-routine environmental inspections being carried out in your country, in cases of complaints, accidents, incidents and occurrences of non-compliance according to the Chapter IV (5 f) of the MCEI"? In many countries the procedure for a non-routine environmental inspection in the event of complaints, accidents, incidents and occurrences of non-compliance is basically similar to the procedure for a routine environmental inspection. Different procedures also exist. Some examples of the responses are presented below (Annex I, Table 78):

- Besides routine inspections in plans, certain man working days are also provided for non-routine inspection included response to complaints and case of accidents/incidents. In cases of non-routine inspections, inspector writes a record about accidents/incidents and takes all necessary actions/measures prescribed by national environmental protection legislative. (Croatia)
- All notification or complaints will be investigated by the Environment Agency officer responsible for the installation, as detailed in a Work Instruction (ref 202_05) "Generic Methodology for assessing Compliance and the Compliance Classification Scheme". (England & Wales)
- Guidance for environmental inspections includes all types of inspections: routine and non-routine inspections (in response to complaints, accidents, incidents and non-compliance). Inspectorates for Environmental Protection have yearly plans for inspections: 80% of time for routine inspections and 20% of time for non-routine inspection. Non-routine site visits are carried out immediately in the investigation of serious environmental accidents after these come to the notice of the inspecting authority. Generally the authority has one month to carry out an inspection in response to complaints (according to the Administrative Code Act). (Poland)

The second question concerning minimum criteria for environmental inspections was "How are incidents and occurrences of non-compliance according to Chapter VII of the MCEI being investigated in your country?" Germany, Portugal, Romania and Scotland referred to their previous replies. Below are some examples of the responses (Annex I, Table 79):

- Within the shortest possible time inspectors have to come on location and clarify the reasons for the occurrence and its environmental impact (responsibility, consequences and sanctions), mitigate/possibly remedy the environmental effects of the occurrence, establish measures for the prevention of further accidents, incidents and non-compliance with legislation, define sanctions for the operator, monitor the operator's activities related to the removal of causes of the occurrence. (Croatia)
- Supervision authorities investigate all cases. The police participate always in serious and criminal cases. (Finland)
- [...] a call of an incident, this is first confirmed by the closest administrative resources (police, council, etc.). If so, the environmental technical staff evaluates the risk of the incident and decides the required action. This can be to archive the call, administrative reaction from the office or inspection of the site. (Spain)
- Incidents as defined in the project are included in the permit conditions [...] Non-compliance situations are regulated by strict legal requests, which means that CA [competent authority] has i) to report every non-compliance to the prosecutor and ii) to impose an Environmental Charge. (Sweden)

8.3 Inspection of incidental releases

There are several different approaches to how incidental releases are investigated during routine inspections. In Denmark, Slovenia and Italy the incidental releases are checked from the records during a routine inspection. In some countries a plan for risk assessment and the occurrences of incidental releases can be examined simultaneously (SK, LV and PL). In addition to incidental releases, England & Wales and Portugal indicated that they also inspect records of near misses. In Germany the inspection investigation of incidental releases is accomplished only in the context of a risk assessment plan. The other countries mentioned that both records of near misses and the ones of incidental releases, and a plan for risk assessment are all examined during a routine inspection (FI, RO, SCT, ES, SE). (Annex I, Table 80)

Depending on the incident, supervision authorities in all countries will contact the fire department ("when there is the possibility of fire or an explosion, or an accident involves dangerous substances", Poland), rescue services ("when people are in danger or hurt", Poland), safety technology authorities, industrial safety administrations or chemical authorities. For instance, in Sweden and Denmark all the above-mentioned authorities have responsibilities, and there is cooperation between the authorities, which is regulated by the legislation. In England & Wales they communicate with technology authorities and/or industrial safety administrations, if they believe that there is a breach of safety legislation. (Annex I, Table 81)

In Finland the environmental authority ensures that an operator will also contact other authorities and rescue services if an accident occurs. Germany contacts the fire department to discuss necessary measures for fire protection, chemical authorities when it is a question of labelling chemicals, and also in cases where the occupational health and safety authority is affected to these authorities. In Italy the local police and fire department are always contacted, and, if necessary, technology authorities or industrial safety administrations. Other authorities mentioned were, for example, a legal person authorised to remedy environmental damage (Croatia), the Hazardous Waste Management State Agency (Latvia), the Labour Inspection (Latvia), the General Inspectorate for Emergency Situations (GIES, Romania), the River Basin Authority (Slovakia), municipal offices (Slovakia) and the Civil Protection Unit (Spain). (Annex I, Table 81)

8.4 Enforcement

There are several different enforcement measures used by the countries, for example, voluntary or administrative means, fines, admonition and official report of an offence. The distribution of the measures used is presented in Figure 5. Voluntary means are used in Finland, Germany, Sweden and Poland; but in Poland this option depends on the scale of an accident. In Scotland voluntary means are feasible for minor releases, but they are infrequent. In Spain voluntary means are used when there is no significant harm to the environment or people, and the willingness of the operator to collaborate is clear. (Annex I, Table 82)

Administrative means are used in six countries. In England & Wales it depends on the outcome of the Common Incident Classification Scheme and the Enforcement and Prosecution Policy. Additionally, fines can only be imposed by the courts. In Latvia they give merely instructions and in Romania it is possible to cancel the permit. In Poland administrative means include decisions, for instance, on stoppage of a plant or process, and notification to a public prosecutor or the court. Postal notification is used in Portugal in order to verify the compliance related to the legislation, exclusively by documentation evidence and proof. Orders are issued to require operators to take action (mandates). In cases of non-compliance, the reports are sent to the prosecutor. In Scotland administrative actions will be used if releases are minor but repetitive. Spain answered that in some cases they impose temporary measures, which might include stopping some part of the process, until the emission limit values are reached or it is clear that there is no risk to the surroundings. (Annex I, Table 82)

Fines as an enforcement measure are used in several countries. In Romania fines are applied when the ELVs are exceeded and in Scotland, for medium releases, even if they are infrequent. Slovenia fines the operator, if legislative obligations are not fulfilled. Fines can be imposed when the emission has been above the limit, or there has been an effect on the environment, and an operator has not acted immediately to solve the problem (Spain). England & Wales also commented "if an operator is prosecuted or subject to a formal notice, then the annual charges paid to the environment agency will be increased for the following 3 years. This will pay for increased inspections of operators who have had incidents" (Annex I, further comments on the issues in Chapter 7). (Annex I, Table 82)

Admonitions and official reports are also used in some instances. Admonitions are used in England & Wales, Germany, Latvia and Sweden. An official report of an offence is used in England & Wales where the Environment Agency publishes an annual "Spotlight" report, in which the worst incidents are publicised. Additionally, Finland, Poland, Portugal, Scotland (all major releases), Slovakia and Sweden issue official reports as an enforcement measure. (Annex I, Table 82)

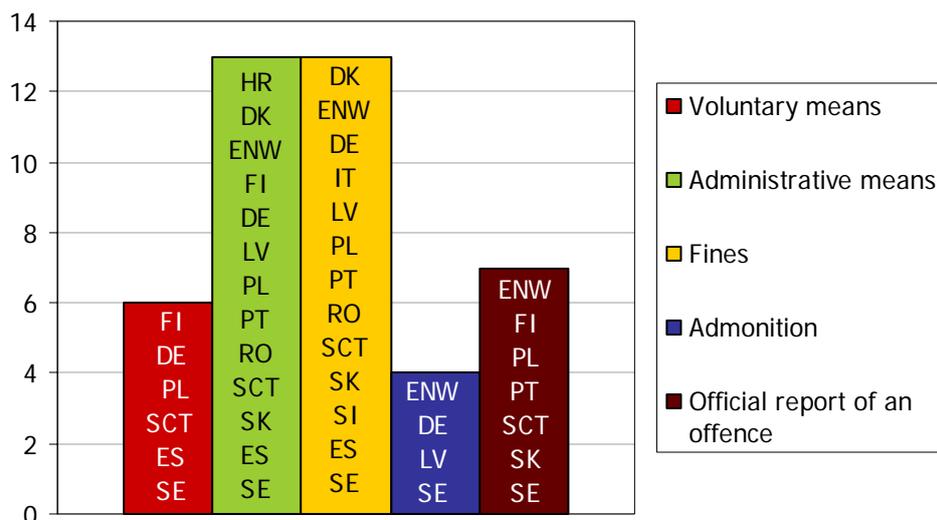


FIGURE 5. Distribution of the measures used for enforcement (Annex I, Table 82)

According to the responses to the questionnaire the enforcement measures are considered to be efficient in all countries. However, Denmark answered that it depends on the kind of enforcement. Sometimes a rather low fine has been imposed as the result of a trial, and thus the operator has not received a significant enforcement action. This means that there is the risk of no preventive action afterwards, which might lead to the risk of an incidental release occurring again. In England & Wales there is a range of measures which can be used when it is appropriate — warning letters, notices, prosecution. Spain replied that they need better knowledge of managing these situations, mainly of the risk assessment approach. Scotland answered that enforcement measures are efficient for the majority of cases. (Annex I, Table 83)

All countries (except Slovakia) answered that they use stronger enforcement measures, if the enforcement measures used do not lead to prevention of incidental releases. Reconsideration of permit conditions is the stronger measure in most countries. In exceptional situations, England & Wales and Portugal will give notification. The distribution of the measures used in the different countries if the previous enforcement measures are not effective is presented in Figure 6. (Annex I, Table 84)

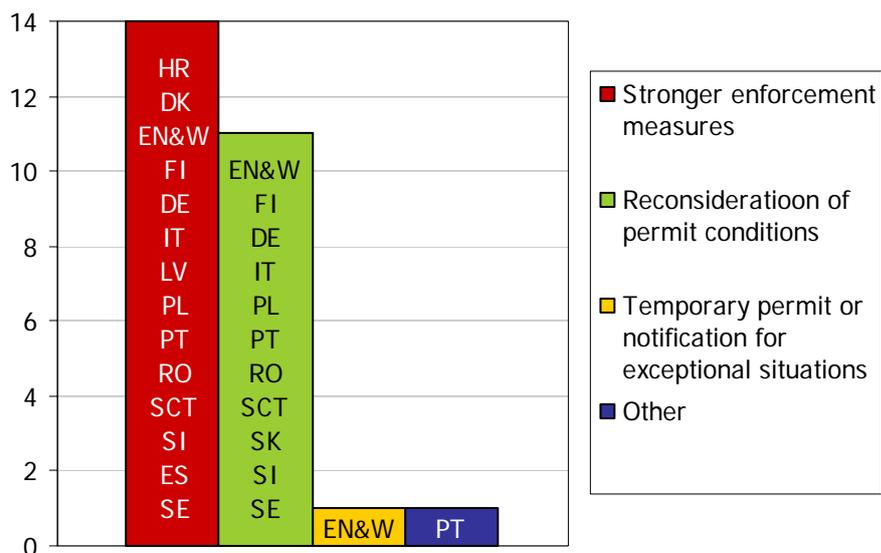


FIGURE 6. Measures used if the previous enforcement measures are not effective (Annex I, Table 84)

Not all countries have sufficient resources for the inspection and enforcement of incidental releases. England & Wales, Romania, Slovakia and Sweden answered that they do have enough resources for these actions. In Croatia's opinion, their human resources are not sufficient, but they are continuously adding new inspectors. Denmark answered that, at the moment, they do not have enough resources at the municipal level. In addition, Finland, Latvia, Poland, Portugal and Scotland declared that they do not have enough resources for inspection and enforcement. In Slovenia the environmental inspection work is under a heavy burden. But, they manage to fulfil all tasks according to an inspection plan through good coordination of the inspectors' work. In Spain they need more resources to cover the 24-hour work and to be able to learn how to use the specific tools for modelling, measuring and assessing the risk in these situations. (Annex I, Table 85)

8.5 Summary of inspection and enforcement

- Incidental releases encumber the authorities to some extent.
- Technical problems and human mistakes are the most typical reasons for incidental releases.
- Non-routine inspections are carried out as routine ones.
- Contact with other authorities if needed.
- Administrative means are the most common enforcement measure, also fines are imposed on an operator.
- Stronger enforcement measures and reconsideration of permit conditions are also possible.
- The enforcement measures are efficient in all countries.
- Several countries do not have enough resources for inspection and enforcement.

9 COMMUNICATION OF INCIDENTAL RELEASES TO THE COMMUNITY

9.1 Responsibility for informing the public

Since the Aarhus Convention was signed in 1998, the access to environmental information has been emphasised in the environmental policy of the European community. The process of restructuring the approach of public authorities to openness and transparency started with Council Directive 90/313/EEC of 7 June 1990 on the freedom of access to information on the environment. The Aarhus Convention consists of three pillars, and the first pillar grants the public the right of access to environmental information.

Access to information is also growing in importance in environmental permitting because Article 15 of the IPPC Directive specifically stipulates access to information and public participation in the permit procedure. Based on this fact, there is an obvious relationship between access to information and confidentiality regarding incidental releases.

All the countries agreed that the operator has the overall responsibility for informing the community and the general public of incidental releases (Annex I, Table 86). Additionally, the environmental authorities and local authorities have responsibility to inform the public of an incidental release. Sweden answered that it is regulated in the Swedish legislation and all the above listed parties have their roles and responsibilities.

9.2 Notice in advance to the community

The question whether it is required to give a notice in advance to the community in those cases when a release can be foreseen was difficult (Annex I, Table 87). Only 4 countries (FI, DE, LV and SCT) replied that they require a notice in advance.

Scotland answered that they require a notice in advance via the application process for a permit. All other countries participating in this project answered that they do not require one. England & Wales replied that they are not aware of any cases when this would happen.

9.3 Informing the community

Most of the participating countries answered that only if the releases affect the environment outside of the site the community should be informed. Poland replied that they inform the community especially when people are in danger or are hurt.

The Swedish opinion on the question on informing the community was that the question seems to cover mainly Seveso issues and other accidents and not incidental releases as defined in the ToR for this project. In Sweden the public always have access to the notifications of incidental releases and the annual reports as mentioned in the answers under 4.3.6.

England & Wales and Scotland replied that in most cases the community is not informed but the information is available in public registers at the Environment Agency and at local authority offices. (Annex I, Table 88)

There are many different ways of informing the community – radio, TV or newspaper are the most common ones. Spain (Basque Country) replied that this depends on the urgency of the matter. If there is a risk to public health the fire brigade, police and public media are used. If there is no risk, the Civil Protection Unit calls the press every day to give information on the developments until the situation is under complete control. (Annex I, Table 89)

The community will be informed of the quality of the releases in most of the countries. Half of the countries replied that also the community will also be told about the quality of the releases. (Annex I, Table 90)

In England & Wales the Environment Agency encourages operators of large installations to set up a local liaison group with the community. This will meet several times each year to discuss the impact of the operator on the local community. Members will normally include a senior manager from the operator, the Environment Agency officer, a local authority environmental officer, local elected politicians and community leaders. Most oil refineries, steel works and cement works will have a local liaison group.

9.4 Summary of communication of incidental releases to the community

- All the countries agreed that the operator has the overall responsibility for informing the community and the general public about incidental releases.
- The environmental authorities and local authorities are also responsible for providing information.
- The most common channels for disseminating information are by TV networks or newspapers, although it is considered very important that the neighbours also know about the releases.
- A notice in advance to the community in cases when a release can be foreseen would be a good practice.

10 CONCLUSIONS

To be able to find out what is considered as good practise the project had to identify also the most common difficult issues concerning incidental releases from industrial installations. At first, the key difficulties are presented, then the good practises and finally proposals for further work.

10.1 Key difficulties

10.1.1 Definitions

Defining incidental releases in practice was considered to be very difficult. Most of the countries do not have any definition of incidental releases in the legislation.

10.1.2 Implementation of the IPPC Directive and RMCEI

The practical implementation of the IPPC Directive proceeding fine, but there are some difficulties with the RMCEI. The inspection practices vary because the RMCEI has not yet been transposed in every country.

10.1.3 Guidance

There are few national guidelines for definitions of incidental releases or on how to prevent and manage them.

Not every country has guidance on how to prepare an environmental permit application.

10.1.4 Permit consideration

Incidental releases are rather difficult to predict. Therefore, it is difficult to formulate and issue concrete permit conditions on incidental releases. Thus, it is not possible to anticipate everything beforehand, nor is it possible to write a condition that cover everything.

Incidental release is for many countries a “new” issue in the permits; more information on these releases should be collected. It is also difficult to assess actions for prevention of incidental releases. Site specific conditions are often requested by an industry, because then it can claim that the conditions have been followed.

Most permits usually have general conditions not binding ones. It is also difficult to set a condition that is easy to supervise. Fugitive emissions cannot be measured and ELVs cannot be given for them. For such cases when fugitive emissions can not be measured there are other types of conditions to be used than emission level values.

Some countries replied that there is a lack of standardised methods to conduct a risk assessment for incidental releases.

10.1.5 Use of BREFs

One of the difficulties was to find enough information on incidental releases in the BREFs.

10.1.6 Monitoring and reporting

Identification of the pollution source can be difficult. There can also be problems in measuring and monitoring incidental releases.

In many countries the operator must decide if a release is significant enough to notify the Environment Agency about it. Information exchange between the operator and state authorities is not always sufficient.

At an early stage of an incidental release it can be difficult to get the full picture of the scale and relevance of the release to identify proper actions. There is also the possibility that actions will be overestimated or underestimated.

10.1.7 Enforcement

Many countries were of that opinion that the environmental legislation has changed too often over recent years. Inspection guidelines are needed for the site inspection of incidental releases. Routine controls are seldom done in some countries, mainly if there are risks at the installations. If the operator has an environmental management system, the controls are even less frequent. In many countries there is a lack of established enforcement procedures to deal with incidental releases.

10.2 Good practice

10.2.1 Definition of incidental releases

In the ToR the incidental releases were defined as releases that can e.g. be related to malfunctions in processes or treatment plants or alternatively they depend on the human factor.

In Scotland an incident means any of following situations:

- Where an accident occurs which has caused or may have the potential to cause pollution;
- Where any malfunction, breakdown or failure of plant or techniques is detected which has caused or may have the potential to cause pollution;
- Where any substance, vibration, heat or noise specified in any Condition of this Permit is detected in an emission from a source not authorised by a Condition of this Permit and in a quantity which may cause pollution;
- Where an emission of any pollutant not authorised to be released under any Condition of this Permit is detected; and

- Where an emission of any substance, vibration, heat or noise is detected that has exceeded, or is likely to exceed, or has caused, or is likely to cause to be exceeded any limit on emissions specified in a Condition of this Permit.

In Finland an incidental release is defined as "an emission, that shall mean the direct or indirect release of substances, vibrations, heat or noise, which is quantitatively or qualitatively exceptional, caused by an exceptional situation and there is a potential of environmental harm. The emission shall be released from individual or diffuse sources in the installation into the air, water or land."

These are good examples of a definition of incidental releases which could be used by other countries.

10.2.2 Implementation of the IPPC Directive and the RMCEI

More focus should be put on transposing the RMCEI and on its practical implementation.

10.2.3 Guidance

In Finland there is guidance on how to prevent and manage incidental releases (Environmental Risk Analysis of Incidental Emissions; see Annex II for further information).

The following proposals for new guidance documents were considered good practice by the persons taking part in the seminar:

- Set a guidance on how to treat the releases in the permit (Spain (Basque Country))
- Develop guidance on risk assessment and monitoring (Spain (Basque Country))
- Develop risk assessment methods (England & Wales)

10.2.4 Permit consideration and BREFs

It is important to set concrete permit conditions that can be inspected.

The operator should inform the authority in advance if there are some problems or if any abnormal situations in the operation can be foreseen.

The seminar found that the BREFs need to be revised in a way that takes incidental releases better into account.

10.2.5 Permit conditions

Some good examples of permit conditions are listed below.

Permit conditions for prevention of incidental releases:

"By [date six months after date of permit] the Operator shall prepare, implement and maintain an "Incident Prevention and Mitigation Plan". At least every [number] years, the Operator shall review the Incident Prevention and Mitigation Plan required under Condition x.y.z. Each review

of the said Incident Prevention and Mitigation Plan shall be recorded and where the Operator makes any revisions to the said plan, said revisions shall be recorded." (Scotland)

"All liquids, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container." (England & Wales)

"Good practise is to set long-term ELVs which cover both the variations of the emission during normal operation of the installation in question and incidental releases as defined in the project. When such conditions are exceeded this is judged as non-compliance." (Sweden)

Permit conditions on management of incidental releases:

"The operator shall:
maintain and implement an accident management plan;
review and record at least every 4 years or as soon as practicable after an accident, (whichever is the earlier) whether changes to the plan should be made;
make any appropriate changes to the plan identified by a review." (England & Wales)

"The operator is obliged to train up the employees for incidental releases once a year and to give evidence about it." (Slovakia)

"There must always be a sufficient amount of absorption material available on site in case of accidents and incidents. Chemicals, fuels, and other harmful substances which have leaked into the environment must be collected immediately." (Finland)

"In case of malfunction of waste water treatment plant or at any breakdown in technology, which cause exceeding pollution of industrial waste water operator have to immediately start with performing of measures to limit or prevent environmental impact." (Slovenia)

"In case of a shut-down the operator has to notify the competent authority prior to the shut-down." (Sweden)

"In case of an incidental release, measures (specified which) have to be taken and monitoring (specified which) has to be done." (Sweden)

Permit conditions on risk assessment

"Until the end of the year 2008 a risk management plan has to be completed with a clarification of storage and use of harmful chemicals and if harmful substances are formed in the processes or are released to the environment, particularly taking into account the lists I and II of different substances in the appendix 1 of the Environmental Protection Decree." (Finland)

Permit conditions for notification of incidental releases

"The Agency shall be notified without delay following the detection of:
(a) any malfunction, breakdown or failure of equipment or techniques, accident, or fugitive emission which has caused, is causing or may cause significant pollution;
(b) the breach of a limit specified in the permit;
(c) any significant adverse environmental effects." (England & Wales)

"All emergency situations regarding incidental releases must be reported by written letter within 24 hours." (Portugal)

10.2.6 Supervision and enforcement

First of all the operator and the authority should find out what is the reason for the release. After that it is important to develop the supervision processes and plans and to enforce the decisions.

Some examples of good practice in carrying out non-routine inspections are:

- Certain man working days are also provided for non-routine inspection included response to complaints and case of accidents/incidents. In cases of non-routine inspections, inspector writes a record about accidents/incidents and takes all necessary actions/measures prescribed by national environmental protection legislative. (Croatia)
- All notification or complaints will be investigated by the Environment Agency officer responsible for the installation, as detailed in a our Work Instruction (ref 202_05) "Generic Methodology for assessing Compliance and the Compliance Classification Scheme". (England &Wales)
- Case-specific consideration, an inspection on site, further actions are agreed with different parties. (Finland)
- If an urgent answer is required, an inspector evaluates it and goes on a site visit. The incidental releases database is annually revised and some of the sites are selected for inspection on the basis of the probability of incidents in the future. If we receive several calls from the site during the years, it is a candidate for inspection. (Spain (Basque Country))

Good practice in investigation of incidents and occurrences of non-compliance are:

- Within the shortest possible time inspectors have to:
 - visit the installation and clarify the reasons for the occurrence and its environmental impact (responsibility, consequences and sanctions);
 - mitigate/possibly remedy the environmental effects of the occurrence;
 - establish measures for the prevention of further accidents, incidents and non-compliance with legislation;
 - define sanctions for the operator;
 - monitor the operator's activities related to the removal of causes of the occurrence (Croatia);
- If the incident is serious and the operator informs the Environment Agency using the 24 hour emergency contact number, then the emergency control room can contact an Environment Agency duty officer who will respond to the incident. There is an officer on duty in each area team 24 hour a day, 365 days a year (England &Wales);
- Every time we have a call of an incident, this is first confirmed by the closest administrative resources (police, council, etc.). If so, the environmental technical staff evaluates the risk of the incident and decides the required action. This can be to achieve the call, administrative reaction from the office or inspection of the site (Spain (Basque Country)); and
- Supervision authorities investigate all cases. It is good practice is to make inspections immediate after incidents have occurred. The police participates always in serious and criminal cases (Finland).

Good practice for enforcement:

- The method used for enforcement (administrative/fines/admonition) depends on the outcome of the Common Incident Classification Scheme and the Enforcement and Prosecution Policy (England & Wales)

10.2.7 Training

It was also pointed out that it is good practice to provide training for environmental authorities as well as for the operators and to raise the level of knowledge.

10.2.8 Additional seminar findings

Additionally, the following were seen as good practice by the participants in the seminar:

- Seeking external expert assistance in complaint situations
- Developing a system for filtering out non-relevant complaints
- Reporting through electronic systems
- Informing the public prosecutor of releases posing a risk to public health
- Experienced authorities and operators
- Categorisation and standard responses
- Written procedures
- 24-hour hot line

11 PROPOSALS FOR FURTHER WORK

During the discussions in the seminar tasks below were identified for further work.

1) Permit conditions and BREFs

- More information about how to prevent incidental releases in the BREFs.
- The permit conditions should frequently require announcements (announcement limit) and rapid actions from the supervising authority in the event of incidents. Also well-defined short-term emission limit values, at least target limits should be in use.
- Authorities should require specific information from the operators about possible situations that may lead to incidental releases, this would make it easier to include more binding conditions in the permits.
- The more binding the conditions are in the permits, the easier it is to supervise them.

2) Guidance

- Develop guidance on risk assessment and monitoring.
- In the permit procedure the process information should be developed for the operators and emergency management.

3) Development of management

- Improve the safety system management and the environmental system management.
- Authorities and operators should improve their skills and other resources should be developed.
- Informing the public: open, straight, fast, and recognizing the limits of the available information.
- Strengthening cooperation among all involved parties.

4) Supervision

- Inspect the installations more often, and try to persuade the operators to reduce the use of harmful substances.

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ACRONYMS AND ABBREVIATIONS

BAT	Best Available Techniques
BREF	Best Available Techniques Reference Document
CA	Competent Authority
CAP	Compliance Assessment Plan
DE	Germany
DK	Denmark
EC	European Commission
EEC	European Economic Community
EIA	Environmental Impact Assessment
ELV	Emission Limit Value
EMAS	Eco-Management and Audit System
EMS	Environmental Management System
EN&W	England & Wales
EPER	European Pollutant Emission Register
E-PRTR	European Pollutant Release and Transfer Register
ES	Spain (Basque Country)
FI	Finland
FMEA	Failure mode and effects analysis
HAZOP	Hazard and Operability Study
HR	Croatia
IGAOT	Environmental and Territorial Planning General Inspectorate
IPPC	Integrated Pollution Prevention and Control (Directive 96/61/EC)
ISO 14001	International Organisation for Standardization – environmental management standard
IT	Italy
LV	Latvia
OPRA	Operator Performance and Risk Appraisal
PL	Poland
PPA	Potential Problem Analysis
PT	Portugal
RMCEI	Recommendation of Minimum Criteria for Environmental Inspections (Council Recommendation 2001/331)
RO	Romania
SCT	Scotland
SE	Sweden
SEPA	Scottish Environment Protection Agency
SI	Slovenia
SK	Slovakia
ToR	Terms of Reference

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