Waste-related Conditions in Environmental Permits

The main objective of this IMPEL project has been to improve and harmonise the implementation of the general principles and the requirements of waste management with special focus on waste minimisation in the IPPC Directive and relevant waste-related directives through the exchange of information and the provision of advice between Member States and Candidate Countries.

The project has concerned large industrial installations with the exception of landfills, incineration plants and agriculture. Under the project, the conditions of waste minimisation and management in integrated environmental permits and permit compliance were explored. The aim has been to address key issues and identify good practices for dealing with waste minimisation and management in the environmental applications and the permit procedure including monitoring and reporting requirements in the participating countries.

Some of the key conclusions:

• specific EU-wide guidelines for the definition of waste, waste prevention, waste handling, waste recovery and waste disposal should be prepared, having regard to, inter alia, the judgements of the European Court of Justice;
• good examples of permit conditions regarding minimisation of waste, measures to minimise the waste amount, substituting raw material, records of waste, audits and assessments, plans and programmes, recycling or recovery, storage, handling and disposal have been described;
• development of the BREFs in a way that takes waste minimisation better into account, encourage exchange of information between EMAS and OHS – occupational health system (ISO 18000);
• training for environmental authorities to raise the level of knowledge in waste issues and harmonisation of the reporting system within the EU for all the waste directives.

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Waste-related Conditions in Environmental Permits

HELSINKI 2005
Foreword

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.

The network is commonly known as the IMPEL Network

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.

Information on the IMPEL Network is also available through its web site at: http://europa.eu.int/comm/environment/impel

This report on Waste-related Conditions in Environmental Permits 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.
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Summary

The IMPEL project on consideration of waste related permit conditions in environmental permits began in August 2003. The general principle of dealing with waste is stated in Article 3 of the European Council Directive of 15 July 1975 on waste (75/442/EEC) and in Article 3 (c) of the Council Directive 96/61/EC on Integrated Pollution Prevention and Control (IPPC). The directives concern large industrial installations and incineration of waste and disposal of waste in landfills. This project focuses on large industrial installations with the exception of landfills, incineration plants and agriculture. The general principles are prevention of waste, recovery of waste (firstly as material, secondly as energy) and safe disposal. The project consisted of a survey, a study on Best Available Techniques Reference Documents, a seminar and this report on waste minimisation and management in environmental permits.

The main objective of the project was to improve the implementation of the general principles and the requirements of waste management, with special focus on waste minimisation in the IPPC Directive and relevant waste-related directives 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 and discussions on waste-related problems.

In this project the following good practices were found in relation to the main objective:

- It is good practice to create specific EU-wide guidelines for the definition of waste, waste prevention, waste handling, waste recovery and waste disposal, having regard to, inter alia, the judgements of the European Court of Justice.
- It is good practice to have the application documents in electronic format and also compiling of data on resource consumption and waste also in electronic form.
- In the permit consideration it is good practice to require materials accounting on a process-line basis and cross-media issues should be taken into account. The operator should be encouraged to either consider product impact, e.g. Life Cycle Assessment, or the Producer Responsibility mechanism. The permit decisions should be in electronic format. The comparison and evaluation of permits for the same kind of industry should be done throughout the country.
- Good examples of permit conditions regarding the minimisation of waste, measures to minimise the waste amount, substituting raw material, records of waste, audits and assessments, plans and programmes, recycling or recovery, storage, handling and disposal are described.
- Development of the BREFs in a way that takes waste issues better into account. Especially more focus on bullets 1–3 in Annex IV to the IPPC Directive. Consideration of waste issues in the cross-media and the
monitoring BREFs. The specific waste BREF should include guidance for permit writers on industrial waste handling and storage.

- An environmental management system (EMS) brings more knowledge of material flows and keeps clean production on the agenda of the management. EMS allows targets to evolve and avoids the difficulty of specifying targets in permits. EMAS is better than ISO 14001 because of the reporting requirements. The combination of EMAS with OHS (occupational health system) would be a good practice. Joint inspection is a good practice (environmental auditors + environmental inspectors). The audit report could also be available on site for environmental inspectors and the summary of audit findings could be submitted as a part of the annual environmental report.

- An integrated monitoring system, in which emissions to air, discharges into water, noise and wastes are considered at the same time, is good practice. Self-monitoring by operators is good practice, if the authorities can control it when necessary. Other good practices are reliable book-keeping, the development of special minimum criteria for the inspection of waste and the improvement of monitoring criteria, such as the amount of waste per production unit.

- An annual plan of inspections for the environmental authorities according to the minimum criteria of inspections is good practice. In determining the frequency of inspections, the type, size and risk of the installation are taken into account. In addition, the previous performance of the plant is considered. It is good practice to do an inspection immediately after an accident has occurred.

- It is good practice to provide general training for environmental authorities and to raise the level of knowledge in waste issues.

**Proposals for further work**

Regarding legal issues, the following proposals were made:

- specific EU-wide guidelines for the definitions of waste, waste prevention and recovery, having regard to, inter alia, ECJ judgements;
- Annexes IIA and IIB (Waste Framework Directive) should be revised and harmonisation of disposal and recovery activity codes in the WFD and TFS registers.

Regarding permit procedures and BAT, the following proposals were made:

- sectoral benchmarking in the EU for key resources use and waste streams;
- explore with DG Enterprise an European-wide waste exchange to encourage the use of waste as raw material;
- guidance for permit authorities on industrial waste storage and handling;
- horizontal waste BREF;
- better consideration of waste issues in the sectoral BREFs and the new cross-media BREF; develop the monitoring BREF for requirements on waste monitoring.

Regarding monitoring of waste, the following proposals were made:

- harmonise the reporting system within the EU for all the waste directives (reporting);
- query the legal basis for EUP decision on monitoring plans;
- EU EPER does not include waste reporting, but reporting is subject to review under PRTR; recommendation that this includes waste and electronic reporting;
• prepare an annual report on waste production and disposal/recovery (EU-level electronic data management if possible).

Regarding environmental management systems, the following proposal was made:
• encourage the exchange of information between EMAS and OHS – occupational health system (ISO 18000).

Regarding the development of environmental administration, the following proposals were made:
• set up a dedicated national waste prevention team;
• establish an EU-wide advisory body, for members to give general waste prevention advice to permit authorities and operators.

Recommendations for further work in IMPEL on the following tasks:
• study on the practical implementation of waste directives and the IPPC Directive for one industrial sector;
• study on impacts of the Aarhus Convention;
• further study of permitting for one sector;
• study on monitoring;
• guidance on waste inspection.
Introduction

Waste production and increasing amounts of waste is a topic of particular concern to most of the European citizens. The European Community generates around 1.3 billion tonnes of waste each year, excluding agricultural waste. This means that in the European Union total waste, which includes municipal waste, industrial waste and other waste, amounts to approximately 3.5 tonnes per capita and year. Five major streams make up the bulk of total waste generation in the European Union: manufacturing waste (26%), mining and quarrying waste (29%), construction and demolition waste (22%) and municipal solid waste (14%). Of the total waste amount, 2% is classified as hazardous waste, i.e. about 27 million tonnes. (Commission of the European Communities, 27.5.2003)

The European Environment Agency reports that “Total waste quantities continue to increase in most European countries. Municipal waste arisings are large and continue to grow. The quantities of hazardous waste generated have decreased in many countries but increased in others due to change of definitions…” To stop this trend good waste management is required and waste prevention and minimisation should be given a top priority in any waste management plan. (EEA, 2003)

The first priority in all policies is waste prevention. The manager should choose the optimal treatment option with the lowest possible risks to human health and the environment in the area where the waste is produced. Consideration should be given to complete or partial recycling. When waste must finally be disposed of, the choice falls between landfill and incineration. (European Commission…, 1999)

The general principle of dealing with waste is stated in Article 3 of the European Council Directive of 15 July 1975 on waste (75/442/EEC) and in Article 3 (c) of the Council Directive 96/61/EC on Integrated Pollution Prevention and Control (IPPC). The directives concern large industrial installations and incineration of waste and disposal of waste in landfills. The general principles are:

- prevention of waste;
- recovery of waste (firstly as material, secondly as energy);
- safe disposal.

The project concerns industrial installations listed in Annex 1 of the IPPC Directive with the exception of recovery and disposal of waste (landfills, waste incineration) and agriculture. The project has been carried out during two years. It explored the conditions on waste minimisation and management in integrated environmental permits for industrial installations. It also studied how the principles of waste minimisation and management have been taken into consideration in the BAT reference documents. Also, the supervision of waste-related conditions in industrial permits has been explored.

The main objective of the project was to improve the implementation of the general principles and the requirements of waste management, with special focus on waste minimisation in the IPPC Directive and relevant directives related to waste through the exchange of information and provision of advice between the Member States and the future Member States. Another objective was to improve inspection and enforcement through developing the network of permitting and supervising authorities and discussions on waste-related problems.
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 a meeting (19 September 2003) of members of the advisory committee. There were members from Austria, Estonia, Finland, Ireland, Germany and the United Kingdom on the advisory committee. The final questionnaire was then sent out to the participating countries: the above-mentioned and Belgium (Brussels Capital Region), the Czech Republic, Croatia, Cyprus, Greece, Slovakia, Spain, and Sweden. The replies to the questionnaire were 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 10–11 May 2004. The third step was to examine BREF documents and draw up the draft final report to be presented at the IMPEL Plenary Meeting in Amsterdam on 1–3 December 2004.

The questionnaire covered specific topics from the Waste Framework and the Integrated Pollution Prevention (IPPC) Directives and their implementation in the countries. In particular, the contents of Article 3 of the Waste Framework Directive and Articles 3 (a), 3 (c), 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 access to information concerning waste issues. The aim of the questionnaire was to clarify the similarities and differences between the countries in implementing the two directives and in the practices of the authorities permitting IPPC installations. The following countries replied to the questionnaire: Austria, Belgium (Brussels Capital Region), Croatia, Cyprus, the Czech Republic, Estonia, Finland, Germany, Greece, Ireland, Italy, Slovakia, Spain, Sweden and the United Kingdom. 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. The possibilities of minimising waste production in industry were presented by Dr Matti Koponen, Senior Vice President of the company Outokumpu Oy, Finland. A Finnish project on waste prevention in the environmental permit procedure was presented by Ms Hanna Salmenperä, Senior Coordinator, Finnish Environment Institute. The themes for the working groups were the legal basis for waste management, waste issues in environmental permitting, waste issues in environmental management systems and waste issues in monitoring, reporting and inspection. Key difficulties in the handling of waste issues were discussed in the seminar and possible solutions to the problems were suggested. Finally, good practices for the consideration of waste minimisation, recovery and disposal in environmental permitting of large industrial installations were agreed on. The chairmen of the seminar were Mr Markku Hietamäki, Environment Counsellor, Ministry of the Environment, and Mr Alec Estlander, Division Manager, Finnish Environment Institute. The practical organisational tasks of the seminar were carried out by Ms Anna-Leena Manner, Planner, Finnish Environment Institute. 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 in 23 June 2004 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 has been drafted by the project team. Annex III presents the studies on the Best Available Techniques Reference Documents and waste management and minimisation. Annex IV presents the project on waste prevention in the environmental permit procedure in Finland. The report has been sent out for comments in October 2004 to the participants in the project. The draft final report has been sent to the IMPEL coordinator at
the beginning of November 2004 for approval at the IMPEL Plenary Meeting in December 2004.

The project was led by the Finnish Environment Institute. The project team consisted of the project leader, Ms Marianne Lindström, Project Manager, and four project experts: Ms Jaana Pennanen, Mr Mikko Attila and Ms Terhi Fitch, Environmental Scientists, and Mr Thibault Siberil, student of engineering. All the experts were employees of the Finnish Environment Institute.

The Finnish advisory team consisted of Mr Tuomas Aarnio, Legal Advisor, Ministry of the Environment, Mr Aimo Aalto, Senior Advisor, Ministry of Trade and Industry, Ms Hannele Kärkinen, Environmental Engineer, Uusimaa Regional Environment Centre, and Mr Juhani Puolanne, Senior Technical Adviser, Finnish Environment Institute.

The Advisory Committee for the project comprised Mr Franz Waldner, Austria, Mr Toomas Liidja, Estonia, Mr Tuomas Aarnio, Finland, Ms Hannele Kärkinen, Finland, Mr Brendan Wall, Ireland, Mr Peter Dihlmann, Germany, Mr Christoffer Allen, the European Commission, and Mr Jon Foreman, the United Kingdom.

Ms Marianne Lindström, Mr Mikko Attila, Ms Jaana Pennanen and Ms Terhi Fitch drafted this report. Mr Thibault Siberil did the study on waste management and minimisation in the Best Available Techniques Reference Documents (BREFs). Ms Hanna Salmenperä did the study on waste prevention in the environmental permit procedure in Finland.

Please note, that Belgium in this report refers only to Brussels Capital Region. There are also two other regions in Belgium with their own legislation.

We are most grateful to all who participated in the project by taking part in the advisory committee work, by answering the questionnaire, by taking part in the seminar and by providing us with examples of permit conditions and comments on the draft report.
2.1 General background

The European Union’s Sixth Environment Action Programme (Decision No. 1600/2002/EC of the European Parliament and of the Council of 22 July 2002 laying down the Sixth Community Environment Action Programme was published in OJ L 242 of 10/9/2002) identifies waste prevention and management as one of four top priorities. Its primary objective is to decouple waste generation from economic activity, so that EU growth will no longer lead to more waste, and there are signs that the objective may be realised.

The Thematic Strategy on the prevention and recycling of waste is one of the seven thematic strategies programmed by the Sixth Environment Action Programme. The first step of the development of this Strategy was the adoption by the Commission of a Communication towards a thematic strategy on the prevention and recycling of waste (Communication towards a thematic strategy on the prevention and recycling of waste, COM (2003) 301). The document was submitted to other European institutions and to stakeholders for comments.

The Communication is a first contribution to the development of a thematic strategy that will cover both waste prevention and recycling. It includes an assessment of Community waste policy in relation to prevention and recycling, with a view to identifying means to further develop waste management policy in line with the hierarchy of objectives set out in the Community’s waste strategy. It focuses on the means to promote more sustainable waste management, by minimising the environmental impacts of waste while also taking into account economic and social considerations.

The objective of this Communication is to launch a process of consultation within Community institutions and with waste management stakeholders to contribute to the development of a comprehensive and consistent policy on waste prevention and recycling.

The EU is aiming for a significant cut in the amount of waste generated, through new waste prevention initiatives, better use of resources, and by encouraging a shift to more sustainable consumption patterns. The objective is to reduce the quantity of waste going to ‘final disposal’ by 20% from 2000 to 2010, and by 50% by 2050, with special emphasis on reducing hazardous waste.

The European Union’s approach to waste management is based on three principles:

1. Waste prevention: This is a key factor in any waste management strategy. If we can reduce the amount of waste generated in the first place and reduce its hazardousness by reducing the level of dangerous substances in products, then disposing of waste will automatically become simpler. Waste prevention is closely linked with improving manufacturing methods and influencing consumers to demand greener products and less packaging.

2. Recycling and reuse: If waste cannot be prevented, as many of the materials as possible should be recovered, preferably by recycling. The European Commission has defined several specific ‘waste streams’ for priority attention, the aim being to reduce their overall environmental impact. This includes packaging waste, end-
of-life vehicles, batteries and electrical and electronic waste. EU directives now require Member States to introduce legislation on waste collection, reuse, recycling and disposal of these waste streams. Several EU countries are already managing to recycle over 50% of packaging waste.

3. Improving final disposal and monitoring: Where possible, waste that cannot be recycled or reused should be safely incinerated, with landfill only used as a last resort. Both these methods need close monitoring because of their potential for causing severe environmental damage. The EU has recently approved a directive setting strict guidelines for landfill management. It bans certain types of waste, such as used tyres, and sets targets for reducing quantities of biodegradable rubbish. Another recent directive lays down tough limits on emission levels from incinerators. The Union also wants to reduce emissions of dioxins and acid gases such as nitrogen oxides (NO₂), sulphur dioxides (SO₂), and hydrogen chlorides (HCl), which can be harmful to human health.

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, but market-based voluntary instruments can go beyond the legislation and support the traditional approach (Figure 2.1). This study does not deal with waste management plans or taxation.

Figure 2.1. The present ways to control waste management.

2.2 Implementation of the Waste and IPPC Directives

2.2.1 Implementation of the waste directives


Article 3 of the Council Directive on waste (75/442/EEC) stipulates:
1. Member States shall take appropriate measures to encourage:
   (a) firstly, the prevention or reduction of waste production and its harmfulness, in particular by:
   – the development of clean technologies more sparing in their use of natural resources,
   – the technical development and marketing of products designed so as to make no contribution or to make the smallest possible contribution, by the nature of their manufacture, use or final disposal, to increasing the amount or harmfulness of waste and pollution hazards,
   – the development of appropriate techniques for the final disposal of dangerous substances contained in waste destined for recovery;
(b) secondly:
(i) the recovery of waste by means of recycling, re-use or reclamation or any other process with a view to extracting secondary raw materials, or
(ii) the use of waste as a source of energy.

Article 3 of the Waste Framework Directive is normally implemented in a waste act in the EU countries. In Austria it is implemented in the Waste Management Act, Trade and Industry Act and the Mining Code. Requirements for waste management and prevention and reduction of waste generation are also included in the United Kingdom’s environmental protection act and in Sweden’s Environmental Code (Ordinance (1998:899)) concerning environmentally hazardous activity and protection of public health and Ordinance (1998:653) concerning governmental support for energy technology. In several countries the first aim is preventing or reducing the production of waste and the second aim is reusing or recovering waste as material or as energy contained in waste. Also the harmfulness of waste is addressed so as to prevent any risks to health and the environment caused by waste (BE, DE, EE, FI, IE, SE and UK) (see Annex I, Table 1).

For example, in Belgium it is stipulated in the OAF (decree concerning the prevention and management of waste substances (7 March 1991), amended by the decree of 18 May 2000)):

Section 2: Preventing the creation of waste substances. Revaluation of waste substances.
Article 4 § 1: The Executive is authorised to take appropriate measures to promote:
1. firstly the prevention or reduction of the production and hazardousness of waste substances, namely encouraging: the development of environmentally friendly technologies with which more economical use is made of the natural resources; the technical development and launching on the market of products that have been designed in such a way that manufacture, use or removal of them does contribute to an increase in the amount or hazardousness of waste substances and to a greater threat of pollution or does so as little as possible; the development of adapted technologies with an eye to the removal of hazardous elements of the waste substances;
2. the useful application of waste substances by means of recycling, reuse, re-application or any other action aimed at obtaining secondary raw materials, or the use of waste substances as a source of energy.

In Croatia it is stipulated as follows:
Law on waste (Official Gazette 34/95)
Article 5 Basic goals of waste management are:
– waste avoidance and minimisation of hazardous properties of which cannot be prevented
– prevention of uncontrolled waste management
– recovery of valuable properties of waste for material and energy purposes…
Article 6 Waste shall be handled and managed in such a manner as to avoid:
– human health hazards
– hazards for flora and fauna
– environmental pollution…
Article 7 In the section dealing with waste management issues, the environmental protection strategy prescribed by separate laws includes:
– assessment of current waste management situation
– basic waste management goals and measures
– hazardous waste management measures…Article 8 The waste management measures…
– measures for avoidance and minimisation
– measures for recovering valuable substances from waste…
Article 12 An industrial waste generator shall in the prescribed manner treat and store industrial waste generated by their operations.

In Estonia’s Waste Act it is stipulated as follows:
§ 5. General requirements for prevention and reduction of waste generation
(1) In any activity, all appropriate measures and care shall be taken to prevent waste generation, to reduce the quantity of generated waste and to prevent any excessive hazard to health and the environment caused by waste.
(2) In order to achieve the objectives specified in subsection (1) of this section, measures shall be taken upon every activity, as far as possible, to:
1) implement technologies, which enable the economical use of natural resources and raw materials, including technologies where waste is recovered to the highest possible extent;
2) manufacture and import, above all, of durable and reusable products which after their discarding result in waste which is recoverable to the highest possible extent.

§ 7. Waste management plans
(3) In the preparation of waste management plans, the following general requirements for waste handling shall be taken into consideration:
1) the best available technology shall be used in waste handling unless this involves excessive costs;
2) waste shall be recovered if it is technologically possible and does not involve any excessive costs compared with other manners of waste handling;
3) the use of waste recovered as raw material or any other material shall be preferred to its use as a source of energy;
4) waste shall be recovered or disposed of at a technologically suitable waste management facility appropriate from the standpoint of environmental protection which is located as close as possible to the site where waste is generated.

In the Finnish Waste Act the provision is as follows:
Waste Act, Chapter 2 Prevention of Waste Generation and Reduction of its Quantity and Harmfulness:
As far as possible care shall be taken in all activities to minimize generation of waste and to ensure that waste does not significantly hamper or complicate the organization of waste management, or result in hazard or harm to health or the environment. Specifically:
1) the producer shall use raw material sparingly in production and, substitute the use of raw material with waste to the extent possible…

Waste Act, Chapter 3 Organization of Waste Management
Waste management shall be organized as follows:
1) the waste holder shall organize waste management…
2) waste shall be recovered if this is technically feasible and does not entail excessive additional costs compared with some other form of waste management;
3) the first priority shall be given to the recovery of the material contained in waste, and the second priority to the recovery of the energy contained in waste;
4) waste or waste management shall not cause hazard or harm to health or the environment:
5) waste management shall employ the best economically available technology and the best possible practice of combating harm to health and the environment…

In the German Federal Immission Control Act the following is stipulated:
Article 5 describes the obligations of operators of installations subject to licensing. Installations subject to licensing shall be established and operated in such a way that in order to ensure a high level of protection for the environment as a whole…
3. wastes are avoided, unavoidable wastes are recycled and non-recyclable wastes are disposed of without impairing the public good. Wastes are unavoidable if their avoidance is technically not feasible or not reasonable. The avoidance is not permissible if it leads to more negative environmental impacts than the recycling. The recycling and disposal of wastes is carried out according to the provisions of the Closed Cycle Waste and Management Act and other regulations in force, which apply to wastes.

Article 3 is transposed in the Greek Ministerial Decision about the plans and conditions for waste management and the National and Regional waste management plan:
All principles regarding prevention, recovery and disposal of waste in order to avoid or minimize the negative impacts in the environment are incorporated in the above-mentioned legislation.

In Sweden Article 3 is transposed in the Environmental Code as follows:
2.2.2 Implementation of the IPPC Directive

The IPPC Directive was adopted by the European Council on 24 September 1996, was published on 10 October 1996, and entered into force on 30 October 1996 (Council Directive 96/61/EC of 24 September 1996 concerning integrated pollution prevention and control). The Member States had to take appropriate implementing measures until 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; the deadline was 30 October 1999. 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 will have to be applied within eight years thereafter (Article 5), or by 30 October 2007.

The IPPC Directive creates a requirement for industrial facilities which fall under its scope of coverage to be made subject to authorisation through permitting. The articles covering waste issues that relate to the project’s agenda are:

Article 3 of the IPPC Directive:
Member States shall take necessary measures to provide that the competent authorities ensure that installations are operated in such a way that:
(a) all the appropriative preventive measures are taken against pollution, in particular through application of best available techniques;
(b) no significant pollution is caused;
(c) waste production is avoided in accordance with Council Directive 75/442/EEC of 15 July on waste
(1) where waste is produced, it is recovered or, where that is technically and economically impossible, it is disposed of while avoiding or reducing any impact on the environment.
For the purposes of compliance with this Article, 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.

Some of the replies that relate to Article 3 (a) are as follows (Annex I, Table 2):
In Austria the IPPC Directive is transposed into the Trade and Industry Act and the Mining Act.

In Croatia Article 3 (a) is transposed in two laws:
Law on environmental protection (82/94, 128/99)
Article 13:
– Efforts should be made to replace any development that might bear adverse impacts on the environment by another one…
– While using products, machinery and equipment and applying production technologies, environmental pollution should be limited at the source of its generation.
– Substances that can be reused or are biodegradable should have priority in use even if it increases expenses, providing that the expenses are proportional to the values that need to be protected.
– The use of chemicals and other substances that become harmless by decomposition shall be given precedence over other substances if there are no environmental risks or threats involved

Law on waste (34/95)
Article 5 Basic goals of waste management are:
– waste avoidance and minimisation, and minimisation of hazardous properties of waste the generation of which cannot be prevented
– prevention of uncontrolled waste management
– recovery of valuable properties of waste for material and energy purposes, and its treatment prior to disposal...
In Finland the provision in Article 3 (a) is transposed into the Environment Protection Act:

§ 42 Preconditions for granting a permit
A party engaged in the recovery or disposal of waste must also post collateral that is sufficient considering the extent and nature of the activity and the regulations issued regarding the activity, or propose some other arrangement to guarantee appropriate waste management. Parties other than those engaged in landfill activities or recovery or disposal of hazardous waste may be excepted from the collateral or corresponding arrangement if they are sufficiently solvent and otherwise able to provide appropriate waste management, or if the waste recovery or disposal activity is of a minor scale. When needed, more detailed provisions concerning the collateral or other corresponding arrangement required of a party engaged in landfill activities are laid down by decree.

In addition, parties engaged in the recovery or disposal of waste shall possess expertise that is sufficient considering the type and extent of the activities.

§ 45 Waste and waste management regulations
In addition, necessary regulations on waste and waste management concerning the observation of the Waste Act and provisions issued under it, and on posting the collateral and other arrangements referred to in section 42, paragraph 3, shall be issued in the permit. This Act applies to the enforcement of the regulations.

A permit for institutional and commercial recovery and disposal of waste may be limited for the recovery and disposal of a particular kind of waste. The recovery of waste from a particular area may be given precedence in the permit.

Article 3 (a) is transposed into the Environmental Code (1999) in Sweden as follows:

Chapter 2 of the Environmental Code contains general rules of consideration. The core obligations for operators are, with a view to protect human health and the environment, to possess necessary knowledge, to undertake all necessary precautionary and protective measures, to apply best possible techniques (for professional activities), to choose a suitable location from an environmental impact point of view, to economize the use of raw materials and energy and to reuse and recycle materials and energy where possible, to give preference to renewable energy sources and, where possible, to substitute chemicals and biotechnical organisms that may cause risks to human health or the environment. According to chapter 2, section 1, the applicant shall show that these obligations will be complied with. According to chapter 9, section 8 of the Environmental Code, and the Ordinance concerning Environmentally Hazardous Activities and Protection of Public Health, applications for permits for environmentally hazardous activities shall be considered by environmental courts or, for activities considered less environmentally hazardous, by county administrative boards.

Chapter 22 EC contains rules on the contents of applications for permits and the permits issued by environmental courts. According to chapter 19, section 5, the relevant sections in chapter 22 shall be applied also by the county administrative boards. Chapter 22, section 1 states that an application shall be made in writing. It shall contain, inter alia, an environmental impact statement pursuant to chapter 6 EC and information about any consultations that have taken place; any information that is necessary for an assessment of compliance with the general rules of consideration laid down in chapter 2; proposals for protective measures or other precautions that may be necessary in order to prevent or remedy the adverse effects of the activity; proposals for control of the activity; a security report in those cases where it is required according to the Swedish Seveso-legislation, and a non-technical description of the information in the application. Chapter 22, section 25, 25(a) and 25(b) contains provisions on the contents of a judgment granting a permit for an activity. The court may only issue a permit if the applicant shows that the obligations in chapter 2 EC are complied with. Furthermore, the provisions of chapter 22, sections 25–25(b), in conjunction with chapter 16, section 2 EC, prescribes that the court or county administrative board shall attach conditions to the permit, based on the obligations in chapter 2, sections 2–7, the overall aims of the Environmental Code in chapter 1, section 1 and the rules on land management and natural resources in chapters 3 and 4 EC.

Article 3 (a) of the IPPC Directive is transposed into regulation 11 of the Pollution Prevention and Control Regulations 2000 in England and Wales:
(1) When determining the conditions of a permit, the regulator shall take account of the general principles set out in paragraph (2) and, in the case of a permit authorising the
operation of a Part A installation or Part A mobile plant, the additional general principles set out in paragraph (3).

(2) The general principles referred to in paragraph (1) are that installations and mobile plant should be operated in such a way that:
(a) all the appropriate preventative measures are taken against pollution, in particular through application of the best available techniques; and
(b) no significant pollution is caused.

The Pollution Prevention and Control (Scotland) Regulations 2000 and the Pollution Prevention and Control (Northern Ireland) Regulations 2003 contain provisions identical to these.

Some answers to Article 3 (c) (Annex I, Table 3):

For example, in Finland Article 3 (c) is transposed into two acts as follows:

Environmental Protection Act, Chapter 7
§ 43 Permit regulations for the purpose of preventing pollution
Permits shall contain necessary regulations on:
1) emissions, their prevention and other limitation and the location of the site of emission;
2) wastes and reduction of their generation and harmfulness;…

Waste Act, Chapter 3 § 6
4) waste or waste management shall not cause hazard or harm to health or the environment;
5) waste management shall employ the best economically available technology and the best possible practice of combating harm to health and the environment;…

Article 3 (c) is transposed into the Environmental Code (1999) in Sweden as follows:
The provisions corresponding to article 3(c) are, above all, sections 1, 2, 25, 25a and 25 b in chapter 22, section 2 in chapter 16 and chapter 2. Worth pointing out is section 5 in chapter 2. These provisions are described under question 1.1.2. Worth mentioning is furthermore chapter 15 containing waste and producer responsibility and ordinance (2001:1063) on waste. Section 1 in chapter 22 states that an application in an application case shall be made in writing. It shall:
1. any information, drawings and technical descriptions that are necessary for an assessment of the nature and scope of the activity of measure;
2. an environmental impact statement pursuant to chapter 6 and information about any consultations that have taken place pursuant to chapter 6, sections 4 to 6;
3. any information that is necessary for an assessment of compliance with the general rules of consideration laid down in chapter 2;
4. proposals for protective measures or other precautions that may be necessary in order to prevent or remedy the adverse effects of the activity;
5. proposals for control of the activity;
6. a security report in those cases where the Act (1999:381) on Measures to Prevent and Limit the Consequences of Major Chemical Accident is applicable on the activity, and
7. a non-technical description of the information stated in 1–6

In the United Kingdom Article 3 (c) is transposed into Regulation 11 of the Pollution Prevention and Control Regulations 2000:
(3) The additional general principles referred to in paragraph (1) in relation to a permit authorising the operation of a Part A installation or a Part A mobile plant are that the installation or mobile plant should be operated in such a way that –
(a) waste production is avoided in accordance with Council Directive 75/442/EEC on waste; and where waste is produced, it is recovered or, where that is technically and economically impossible, it is disposed of while avoiding or reducing any impact on the environment;…

Article 6 of the IPPC Directive: Applications for permits
1. 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 conditions of the site of 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 not possible, reducing emissions from the installation,
– where necessary, measures for the prevention and recovery of waste generated by the installation,
– further measures planned to comply with the general principles of the basic obligations of the operator as provided for in Article 3,
– measures planned to monitor emissions into the environment.
An application for a permit shall also include a non-technical summary of the details referred to in the above indents.

In Finland Article 6 is transposed into both the Environmental Protection Act and the Waste Act (Annex I, Table 4):

Environmental Protection Act, Chapter 6 Permit procedure, § 35 Permit application:
Applications shall include a report on the activity, its impact, parties involved and other relevant matters that are needed in the permit consideration as is laid down in more detail by decree.

Environmental Protection Decree, Chapter 3 Permit applications, § 9 Content of the application:
The Decree stipulates that applications must include a report on the activity, its impact, parties involved and other relevant matters that are needed in the permit consideration, as are laid down in more detail in the decree.

Chapter 3 Permit applications, § 12 Additional information on waste and waste management
In addition to what is provided in sections 9–11 above, if the activities relate to the recovery or disposal of waste the application must also include an account of:
1) the quality and quantity of waste intended for recovery or disposal;
2) the area from which waste is to be taken for recovery or disposal;
3) waste collection and transportation which will be organized by the applicant;
4) waste recovery and disposal and a schematic diagram of the process of recovery and disposal;
5) the type, quality and quantity of waste produced by recovery or disposal and its further recovery or disposal;
6) the applicant’s financial solidity, and where necessary collateral security or other comparable arrangements;
7) waste management expertise available to the applicant.

In Germany the Federal Immission Control Act determines the permit procedure:
The operator has to submit a written application. Any drawings, explanations and other supporting documents required for the verification of the prerequisites for licensing have to be added to the application.

Ninth Ordinance for the Implementation of the Federal Immission Control Act (Ordinance concerning the Licensing Procedure – 9. BImSchV)
Article 4 and from 4a to 4e describe the content of the application.
Article 4: Application documents
Article 4a: Description of the installation and the operation
Article 4b: Description of Preventive Measures
Article 4c: Information on Waste Management
Article 4d: Data on energy efficiency
Article 4e: Additional data for installations, which have to undergo an environmental impact assessment pursuant to the Environmental Impact Assessment Act.

In Sweden Article 6 of the IPPC Directive is transposed into the Environmental Code:
As mentioned in question 1.1.2, the same rules concerning the content of the applications apply for applications tried by county administrative boards and environmental courts. Section 1, chapter 22 EC states that the application shall be made in writing and what it shall contain. The section is not meant to be exclusive on all the details required. The requirements are rather to be looked at in each individual case. The section should be read in its context and in the light of, for example, the general rules of consideration in chapter 2 EC. Based on this, section 1,
chapter 22 EC meets the requirements in article 6 of the IPPC Directive. Furthermore, the court shall order the applicant to submit additional information within a specified time period if it considers the application incomplete. Furthermore, section 6, chapter 22 gives government agencies, county administrative boards and municipalities the opportunity to plead in the case in order to safeguard environmental interests and other public interests. Worth mentioning is also that when an application is handed in to a court, the court circulates the application to certain government agencies and municipalities. This procedure is one more way to ensure that the application is complete.

**Article 9 of the IPPC Directive: 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 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.

3. The permit shall include emission limit values for pollutants, in particular, those listed in 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). If 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…

Some of the answers by the participating countries (Annex I, Table 5):

In Belgium the following elements must be taken into consideration:

OPE (decree concerning environmental permits dated 5 June 1997)

Article 55 Elements to be taken into account when taking the decision

1. the best available technologies to prevent, reduce or solve the dangers, nuisance or discomforts as a result of the installation, as well as the concrete possible uses of those technologies.

4. the provisions compulsory by law that apply, including the programmes to reduce pollution and the regulations and objectives of the Regional plan concerning the battle against noise nuisance on the one hand and the Regional plan for the prevention and management of waste substances that are binding for the issuing authority on the other hand.

Article 56 Special operating conditions

Without prejudice to the other conditions, the authority that issues the environmental permit can determine the following:

2. the conditions for inspection of the installation and its environment and in general for every periodical inspection;

3. the conditions for the measures that must be taken if an accident or incident occurs that causes damage to the environment and the persons that under article 2 must be protected;

4. the conditions for the roads to be taken to or from the installation by the freight traffic;

5. the conditions for the condition that the location must be in after termination of the operation, and the guarantees that the operator must given on this account.

In Estonia, in accordance with the IPPC Act, the permit shall contain:

§ 17 Contents and requirements of permit…

(2) considering the nature of the operation and the environmental impact of the operation the following shall be determined in a permit:

1) emission limit values…

2) the extent use of raw materials, chemicals, energy and water, and the measures which, considering the protection of the environment as a whole, ensure the effective use of such resources and, where technical and economical resources allow the recovery thereof;

3) the maximum allowed quantities for waste generated, including the maximum allowed quantities for waste released to the environment…

6) the measures for prevention of waste generation…
In Ireland the conditions of a permit/licence shall contain:
84 (1) Without prejudice to the generality of section 83 (1), conditions attached to a licence or revised licence granted under this part
(a) shall
(i) in accordance with section 83(4) and subject to subsection (3), include emission limit values for environmental pollutants likely to be emitted from an activity in significant quantities,
(ii) specify requirements for the purpose of minimising pollution, including minimising the occurrence of pollution over long distances or in the territory of other states, and to ensure a high level of protection for the environment as a whole,
(iii) if necessary, specify requirements concerning protection of the soil and groundwater, and the management of waste generated by an activity,
(iv) specify appropriate requirements for the purpose of monitoring emissions, including the taking and analysis of samples, the making of measurements in accordance with specified methodologies and frequencies, the evaluation of the results of such monitoring in accordance with specified procedures and the keeping of records and the furnishing of information to the Agency or to any other specified person in relation to such monitoring and evaluation (and such requirements may include a requirement that the licensee confirm whether or not he has complied with the conditions attached to the licence or revised licence and, if he has not complied with any such condition, a requirement that he indicate in what respect he has not complied with the condition),
(v) specify the measures to be taken other than in the circumstances that prevail during normal operating circumstances and, in particular, measures to be taken if there is a breakdown of any plant or other equipment or procedures which may affect emissions from the activity, including measures to be taken in relation to start-up, shutdown, leaks, malfunctions or momentary stoppages, specify that the Agency is to be informed without delay of any incident or accident significantly affecting the environment, and
(vii) specify the measures to be taken, including as appropriate the duration of such measures, on and following the permanent cessation of an activity (including such a cessation resulting from the abandonment of the activity);
(b) may (to the extent that the matter is not provided for by a condition under paragraph (a)):
(i) specify as appropriate the nature, composition, temperature, volume, level, rate, method of treatment and location of an emission,
(ii) specify the periods during which an emission may, or may not, be made,
(iii) specify limits to the effects of an emission,
(iv) specify the concentration of an environmental pollutant in an environmental medium or a deposition of discharge rate which shall not be exceeded...
(x) specify requirements in relation to the recovery or disposal of waste arising from the activity on land other than land on which the installation is situated and whether in the ownership or occupation of the licensee or not (including requirements with respect to the furnishing of information to the Agency in relation to the land for the time being used, or land proposed to be used, for the purpose of such recovery or disposal.

When granting a permit for an activity the following requirements shall be included, among others, in Sweden:
The requirements in chapter 2 EC, in combination with the requirements on the content of a permit stated in chapter 22, sections 25, 25(a) and 25(b) mean that the requirements in article 9 in the IPPC Directive always are fulfilled. Furthermore, there are binding regulations on for example protection of groundwater, discharges of industrial waste water, treatment of soil water, the design of landfills, incineration of waste, the handling of waste etc. Amongst others following issues are to be included in the permit:
1. the purpose, situation, scope, safety and technical design of the activity;
2. any conditions that are necessary to prevent or limit any harmful impact or other detriment;
3. any necessary conditions concerning the handling of chemical products in connection with the activity, where such handling may be detrimental to the external environment;
4. any necessary conditions concerning waste disposal and recycling and reuse where handling, recycling or reuse may be detrimental to the external environment...
2.3 Definition of waste

2.3.1 Guidance on the definition of waste

The replies to the questionnaire show how difficult the question concerning the definition of waste can be. Half of the participating countries (Austria, Cyprus, the Czech Republic, Germany, Greece, Italy, Slovakia, Sweden) do not have any guidance for the definition of waste in addition to the legislation, the others do (Belgium, Croatia, Estonia, Finland, Ireland, Spain, the United Kingdom) (Annex I, Table 6).

In Austria only the definition given by the Waste Management Act exists. Further definitions can be given by an administrative court in Austria or by the European Court of Justice. There are two guides in Belgium, one concerning construction waste and the other waste substances from the health care sector. In Croatia there are so called role books on container waste managements, waste management requirements and waste types. In Estonia there is an article in the Tartu University Journal on Law comparing the EU waste definition and the European Court of Justice decision with Estonian Court decisions on the definition of waste.

The following definition was given in the Finnish project on waste monitoring: “waste includes wastes for both recovery and disposal and this also covers wastes recovered and disposed as part of the enterprises “own production”. However, remnants and by-products which can, without recovery operations, directly and in their entirety be used in the same process in which they have arisen are not wastes.

Also Ireland answered that the main issue concerns the classification of by-products. The Irish industry generally believe that where a by-product has a high value and is in demand, then it is not a waste. The other main issue is what to do with a burnable material to generate heat. Where the material has a calorific value equivalent to convention fuels and produces emissions of no worst quality, is it then a waste and is the processing of waste a recovery operation? (Annex I, Table 6)

2.3.2 Difficulties with the definition of waste

In most countries the definition of waste has caused difficulties. Only Cyprus, Greece, Slovakia and Sweden replied that they have not had any difficulties with the definition. (Annex I, Table 7)

In most of the countries (Austria, Croatia, Estonia, Finland, Germany, Ireland, Italy, Spain, the United Kingdom) problems occur with the need to differentiate between waste, by-products and products. This can, for example, apply to incineration plants, where it must be determined whether the processed plastic waste is fuel or waste. Belgium pointed out that it is difficult to determine whether some waste substances are hazardous or non-hazardous.

The difficulty in distinguishing between products and residues (waste) affects IPPC permits the most (the United Kingdom). Both the Palin Granit case and the Avesta Polarit Chrome Oy case, decided by the ECJ, provide guidance on what constitutes a by-product. In the UK Environment Agency’s view it depends on what might be thought of as a ‘closed loop’ process (e.g. where off-cuts are fed straight back into the original manufacturing process), which does not result in the off-cuts being discarded. However, it is common practice to design a manufacturing process so that waste is minimised and a beneficial use is identified for all “co-products” from the process. It is not always desirable to simply identify the primary products that a company sets out to produce and classify the remainder as waste, although this is what the case law of the ECJ appears to be requiring (unless the remaining
materials are certain to be reused without further processing as an integral part of the production process). It is not uncommon that the markets for ‘by-products’ are as important as the markets for the original product. In addition, there are examples in the food and drink sector where the consideration of a co-product as a waste results in the activity falling below the PPC threshold. Basically, uncertainty about the interpretation of the definition of waste in any particular situation will inevitably cause uncertainty and therefore difficulty for IPPC to the extent that (i) the activity may thereby become an IPPC covered waste management activity, and/or (ii) that the status of material produced or used in an industrial activity has a bearing on the IPPC “general principle” regarding waste minimisation. (Annex I, Table 7)

### 2.3.3 Special difficulties

The definition of waste is the main problem but also the determination of hazardous and non-hazardous has been found to be problematic. The classification of by-products is a difficult question for the countries.

Special difficulties occur in the following industrial sectors (Annex I, Table 8):

- incineration
- heavy industry
- chemical industry
- mining
- pharmaceutical industry
- asphalt
- energy production
- wood industry
- food and drink industry
- intensive agricultural slaughtering
- cars
- freezers

Difficulties in the classification of wastes as substances occur for (Annex I, Table 9):

- fly ashes
- sludge from waste water treatment plants
- excavated earth
- catalysts
- solvents
- fuels
- by-products

The working group discussed whether there is a need for guidance in defining waste issues. The conclusion was that specific EU-wide guidelines for definitions of waste prevention and recovery having regard to, inter alia, judgements from the European Court of Justice would be needed. The lack of definitions and guidelines also has an effect on enforcement and supervision.

### 2.4 General requirements on uniformity

Sectoral uniformity of the permit conditions should be one of the targets in the permit procedure. The countries could do more research on and analyses of uniformity by comparing permits and their conditions; for example, between the metal, pulp and paper industries and also between other sectors.
2.4.1 Implementation tools to ensure uniformity

Uniformity in the permit procedure at least to a certain extent, could be ensured by using BREFs. In addition, there could be different concrete tools in the countries. (Annex I, Table 10)

Finland has a permit template for environmental permits that points out what kinds of issues should be decided on. This guarantees, for example, that a permit addresses all emissions to and impacts to the different environmental sectors, as well as waste management and techniques in accordance with BAT. It does not as such give any guidance on the emission limit values.

Uniformity in the content of a permit, such as similar conditions for similar installations, is secured through different instructions, for instance, technical instructions for air quality control, noise prevention, waste management and water protection either on the national or regional Länder level in Germany. Uniformity in structure is demanded under the Administrative Procedure Act.

Ireland has sectoral permit templates and sectoral BAT guidance. In addition, within the Environmental Protection Agency (EPA) there is a review of all draft permits by acknowledged EPA experts for any given sector. They also hold regular meetings with industry representatives for feedback on permit processes. The EPA also carries out research on benchmarking with IPPC sectors.

In Sweden the environmental court or the county administrative board have to consider the application based on the same legal regulations and case law. This ensures that similar installations are given the same legal consideration. It is also possible to appeal against a permit decision to a higher court; thus case law is created under a higher court. The Swedish Environmental Protection Agency has also issued guidelines and regulations on various issues in the environmental code.

The Environment Agency (EA) for England and Wales has developed a permit template with a number of standard conditions to encourage a consistent approach to permitting. (Annex I, Table 10)

2.4.2 Typical causes of non-uniformity

Austria pointed out that non-uniformity is mainly due to different local conditions and Finland pointed out that it could depend on the number of permit authorities at different levels. Not all IPPC permits have not been updated in Belgium. The operating permit conditions are evolving, and the IPPC permits are being adjusted so as to impose the same kind of conditions on the companies, if possible.

In Austria, Finland and Sweden the permits also depend on the local conditions, for instance, location of a plant. The permit writer has to take into consideration the local environment and the people living there. The same situation applies to permits in the United Kingdom because the actual permit conditions have to take into account each installation’s technical characteristics, location and local environmental conditions.

Germany answered that even different officials in charge might interpret the guidelines differently. The environmental permits have not been updated in Belgium. Although the decree on environmental permits has been issued, there are still some environmental regulations which were valid that where issued before the decree. In Spain there are 17 autonomous communities and each one carries out the implementation of the legislation in its area. It seems there is not much communication between them, rather each community decides independently on how to implement the legislation. (Annex I, Table 11)

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1 For example, Finland has 16 state authorities overseeing permit work, of which three are permit authorities deciding on permits for activities having major environmental impact, and 13 are regional environment centres working on permits in their respective regions.
2.4.3 Variations in waste requirements

Most countries (Austria, Belgium, Croatia, the Czech Republic, Estonia, Finland, Greece, Italy, Slovakia and Sweden) answered that there are no variations in waste requirements within the industrial sectors. Austria answered that, in principle, the Waste Treatment Act does not differentiate between industrial sectors and this is also the case in most of the other countries.

Belgium has a waste substances plan, but it does not yet entail a real obligation on companies. The strategy and main lines of the plan include dematerialisation, re-use and making the producer more responsible.

In Germany, the Länder working group on immission control has elaborated General Model Administrative Regulations on prevention and recycling of waste for several industrial sectors. These regulations were developed several years ago and have not been updated. The regulations give information and suggestions on typical wastes and possible procedures.

Ireland answered that there are differences between permits for solely “merchant” waste operations and operations where waste operations are an associated activity to another primary activity.

The United Kingdom answered that there could be variations in waste prevention, recycling and disposal because the permit conditions have to take into account each installation’s technical characteristics, location and local environmental conditions. (Annex I, Table 12)

2.4.4 Research concerning uniformity

Most of the countries answered that no research has been carried out concerning the uniformity of permits for similar installations. Only Belgium, Finland, Ireland and the United Kingdom have done research on this subject. (Annex I, Table 13)

Finland carried out a two-year research project where the new Environmental Protection Act of 2000 was assessed. In Finland the permit consideration is independent and done on a case-by-case basis, which can lead to non-uniform decision-making. Uniform implementation of the environmental law is crucial for the legal protection of the operator and for the credibility of the authorities. Some non-uniform solutions could be justified both by operators and affected persons because of, for example the location of the installation and the local environment. As a main conclusion it can be said that there is quite broad uniformity concerning IPPC permits in Finland, with the exception of what the local conditions require.

This first assessment was done for the first two years after the environmental law was renewed in Finland. Most of the largest installations had not yet been given their permits during this period; therefore, a new assessment should be done when the IPPC installations also have their updated permits. The Ministry of the Environment has established a follow-up group for assessing the Finnish Environmental Protection Act and one of the tasks of the group is to develop processes for further uniformity of the permit procedure.

The Confederation of Finnish Industry and Employers has also carried out a study of permits for IPPC industries and found out that there are some differences in the permits.

Different interest groups in Ireland for the power, rendering and intensive agriculture sectors have also done some research concerning uniformity.

In the United Kingdom the Environment Agency (EA) for England and Wales has developed a database of good permit conditions and has carried out reviews of permits issued to determine the effectiveness of the permitting process and the consistency of the approach. The EA has recently completed research to assess the permitting issues in connection with the waste minimisation requirements.
3. Authorities and organisations

3.1 Competent authorities

This section deals with the national competent authorities and other organisations that are responsible for waste and environmental issues in environmental permitting. The most common situation is that the ministry or department of the environment, and often also agriculture, is responsible for the national policy on waste. (Annex I, Table 14)

The responsibility can also be shared between the ministries, as in Croatia where the Ministry of Environmental Protection, Physical Planning and Construction, the Ministry of Health and the Ministry of Economy jointly hold responsibility for the national policy on waste. The responsibility is also shared between the ministries and authorities, as in Sweden where the Ministry of the Environment and the Swedish Environmental Protection Agency share responsibility. In Ireland different ministerial departments co-operate in the field of waste policy and the Environmental Protection Agency acts as a policy advisor. In Belgium the Brussels Institute for Management of the Environment is responsible for the national policy on waste for the Brussels Capital Region. Estonia is an exception, because the Government of the Estonian Republic holds the responsibility in question. (Annex I, Table 14)

In most of the countries the same ministries and authorities are the competent authorities giving guidance on waste in IPPC permits as are responsible for the national policy on waste. In addition to the organisations mentioned in Annex I, Table 14, there are also other ministries or authorities with competency in some countries in giving guidance. Besides the Federal Ministry of Agriculture, Forestry, Environment and Water Management, the Federal Ministry of Economics and Labour also gives guidance in Austria. In Italy the Ministry of the Environment is competent in coordination with the Ministry of Productive Activities and the Ministry of Health. In Slovakia the competent authority giving guidance on waste in IPPC permits is the Slovak Inspectorate of the Environment. In the United Kingdom the competent authorities are the Environment Agency, the Scottish Environment Protection Agency, the Northern Ireland Environment and Heritage Service and, in relation to local authorities in England and Wales, the Department for Environment, Food and Rural Affairs. (Annex I, Table 15)

The IPPC Directive does not stipulate how many permit-granting authorities a Member State should have. Nevertheless, the permit has to be fully coordinated if there are several competent authorities. The Member States thus have an opportunity to organise their competent authorities according to their national interests, as long as the coordination between different authorities is fully organised (Lindström et al. 2003, 19).

There are several competent authorities issuing IPPC permits including waste in most of the countries. On the national or federal level the competent authorities are ministries, environmental protection agencies or environmental courts (Austria, Cyprus, the Czech Republic, Greece, Ireland, Italy, Sweden). On the province (Länder) level there are competent authorities in Austria, Estonia, Finland, Germany (depending on the Länder legislation) and Italy. There are competent authorities granting permits on all four levels in Italy. In contrast to Italy, there is only one...
authority granting permits in Slovakia, Spain and Ireland. In Slovakia and Spain the competent authority is on the regional level, while in Ireland the authority granting permits is on national level. (Annex I, Table 16)

There are also other bodies associated with the permit procedure on waste issues in several countries. For example, in Croatia the county offices are associated with the permit procedure on non-hazardous industrial waste and municipal waste, and in Slovakia the district environmental offices issue statements on waste issues. In the United Kingdom all the regulations contain requirements for the relevant regulator to consult other statutory organisations about each IPPC permit application. (Annex I, Table 17)

In many countries the same authorities responsible for monitoring compliance with waste-related permit conditions in IPPC installations are responsible for permit procedures (Austria, Belgium, Cyprus, the Czech Republic, Spain, Slovakia, the United Kingdom). In Finland the regional environment centres are responsible for monitoring the permit conditions. In Germany it depends on the Länder legislation as to which authority is responsible for monitoring. Besides Finland and Germany, there are some differences between the authorities responsible for permitting and monitoring in Estonia, Greece, Ireland, Italy and Sweden. For example, in Estonia the Information Centre of the Ministry for the Environment is a responsible authority for monitoring in addition to county environmental departments and municipal governments. (Annex I, Table 18)

The inspection authority is the same as the permitting authority in most of the countries (Austria, Belgium, Cyprus, the Czech Republic, Germany, Finland, Ireland, Italy, Slovakia, the United Kingdom). The advantages and disadvantages of such a system are described in Table 3.1. (Annex I, Table 19)

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Only one authority responsible for an installation; knows the installation from the very beginning (AT, DE)</td>
<td>• More “independent” control would be possible, if a different authority carried out inspections (AT)</td>
</tr>
<tr>
<td>• The inspection can be carried out quickly if necessary; the inspectors can be asked for advice when the permit is being made up; mutual cooperation (BE)</td>
<td>• Priorities are usually on permitting and therefore time allocated for inspection is not enough. The permitting authority has no time to make inspections (CY, FI, DE)</td>
</tr>
<tr>
<td>• Staff knows well the function of the installations (CY)</td>
<td>• “Local” dimension on enforcement matters (IE)</td>
</tr>
<tr>
<td>• The permitting authority knows best the installation and knows what needs to be inspected (FI)</td>
<td></td>
</tr>
<tr>
<td>• Continuity, consistency, reservoir of expertise, ownership, national perspective (IE)</td>
<td></td>
</tr>
<tr>
<td>• Consistency of approach and integration of the permitting regime. The view of the Scottish Environment Protection Agency is that enforcement action ranges from formal written warnings to prosecution, and separating these forms of action would make it more time consuming to enforce permit conditions (UK)</td>
<td></td>
</tr>
</tbody>
</table>

2 In Germany it depends on the Länder legislation, whether the inspection authority is the same as the permitting authority. Also the Czech Republic and Finland have answered that in some ways the inspection authority is the same as the permitting authority. In the Czech Republic the Ministry of the Environment carries out control of an integrated permit or the operation of an installation. The Czech Environmental Inspectorate controls compliance with obligations. Although the environmental permit authorities (big installations) and the regional environment centres (small installations) are the permitting authorities in Finland, only the regional environment centres are the inspection authorities for the IPPC installations. Additionally, the responsibilities of permitting and inspection are divided under different divisions in the centres. (Annex I, Table 19; see also Table 16)
In some countries the inspection authority is not the same as the permitting authority (the Czech Republic, Germany, Estonia, Spain, Finland, Greece, Croatia, Sweden). The advantages and disadvantages of such a system are described in Table 3.2. (Annex I, Table 19)

### TABLE 3.2. Advantages and disadvantages if the inspection authority is not the same as the permitting authority. (Annex I, Table 19)

<table>
<thead>
<tr>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Issuing the permit does not influence the inspection control (HR)</td>
<td>• Conflicts in interpretation of legislative provisions (HR)</td>
</tr>
<tr>
<td>• Action is taken in cases of non-compliance concerning liability of the company, good permits are achieved (EE)</td>
<td>• The lack of exchange of information (CZ)</td>
</tr>
<tr>
<td>• In the case of separation between permitting and inspection authorities, inspectors are not occupied with permitting. Inspections have to be carried out (DE)</td>
<td>• A problem of information exchange, information is not available, problems of co-operation (EE)</td>
</tr>
<tr>
<td>• More objective (ES)</td>
<td></td>
</tr>
</tbody>
</table>

### 3.2 Other organisations

Seven countries answered yes to the question whether there is any transboundary cooperation on waste issues between environmental authorities when issuing IPPC permits (Belgium, Germany, Estonia, Finland, Ireland, Sweden, the United Kingdom). Some countries stated that if a project or an installation for which a permit application has been made is likely to have significant negative effects on the environment of another Member State, the authorities and the public in that Member State must participate in the process. These statements are based on the Espoo Convention, the provisions of the IPPC Directive and national legislation. For example, in Germany, according to Article 11(a) of the Ordinance concerning the licensing procedure (9. BImSchV) and Article 9(a) of the Environmental Impact Assessment Act (UVPG), the permitting authority has to ensure transboundary public participation and the participation of authorities. Questions concerning waste are only one aspect of this process. Authorities and the public can participate in the permit process. The authorities of the other country can submit their statements on the application and the public of the other country can submit objections. Both can participate at the time of public discussion. (Annex I, Table 20)

In the United Kingdom the procedure requires the Minister to send a copy of the application to whichever Member State(s) may be affected. The Minister may act independently, on a regulator’s advice or at the request of another Member State. The regulator must not determine the application until the Minister confirms that consultation with the other Member State is complete. The regulator must take account of any representations from other Member States. For these purposes, ‘Member State’ specifically includes Norway, Iceland and Liechtenstein as members of the European Economic Area. (Annex I, Table 20)

Trade associations and NGOs are both involved in waste issues concerning IPPC installations in some countries (Cyprus, Germany, Croatia, Ireland, the

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3 In Germany it depends on the Länder legislation, whether the inspection authority is the same as the permitting authority. Also the Czech Republic and Finland have answered that in some ways the inspection authority is the same as the permitting authority. In the Czech Republic the Ministry of the Environment carries out control of an integrated permit or the operation of an installation. The Czech Environmental Inspectorate controls compliance with obligations. Although the environmental permit authorities (big installations) and the regional environment centres (small installations) are the permitting authorities in Finland, only the regional environment centres are the inspection authorities for the IPPC installations. Additionally, the responsibilities of permitting and inspection are divided under different divisions in the centres. (Annex I, Table 19; see also Table 16)
United Kingdom). For example, in Croatia they are involved in waste exchange of the Croatian Chamber of Economy and in public participation. In Cyprus, trade associations and NGOs are members of Technical Committees. In Ireland, NGOs’ involvement is generally related to input and objections to the issue of permits for major industry and, particularly, industry with notable waste elements (e.g. incineration and landfill). Trade organisations submit position papers and opinions to permit authority regarding permit procedures and other procedures. They may also object on behalf of one of their members to certain permit conditions. Both NGOs and trade associations lobby the Government on policy issues in Ireland. In Finland, NGOs can object to and give opinions on an application during the permit procedure. In Sweden, NGOs have the right to speak in the Environmental Court and to appeal a permit decision. On the other hand, NGOs might be involved in the permitting process in Austria only during an environmental impact assessment (EIA) of installations. Known civic action groups, universities and research institutions, associations of a specific industrial sector, district environmental offices and claimants were also mentioned as being involved in waste issues concerning IPPC installations. (Annex I, Table 21)
Waste-related conditions in the permit procedure

4.1 Approach and guidance

Article 3 (c) (General principles governing the basic obligations of the operator) of the IPPC Directive states that

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

(c) waste production is avoided in accordance with Council Directive 75/442/EEC of 15 July 1975 on waste (1); where waste is produced, it is recovered or, where that is technically and economically impossible, it is disposed of while avoiding or reducing any impact on the environment;”

According to the replies, only four of the 15 countries participating in this project have a specific approach concerning waste prevention, recovery and disposal in IPPC permits. However, a clear majority provides guidance related to the issue.

Ireland has a policy requiring waste minimisation and recovery to be included in the environmental management systems at installations. Additionally, there are policies on residuals management (closure of the installation and aftercare) and environmental liability that are applied to all installations where waste is considered a substantive issue. In the United Kingdom guidance issued by the regulators requires a systematic approach to raw material management and waste minimisation through auditing and the development of action plans to implement improvements on a time scale approved by the regulator. Cyprus has a strategic plan for solid and hazardous waste and the Czech Republic has a decree “on establishing the specimen of the application for integrated permit, the scope and method of filling in the application”. (Annex I, Table 22)

In Austria the applicants have to establish a Waste Management Concept to obtain permits under the Trade and Industry Act, the Waste Management Act or the Mining Code. The concept covers all sorts of installations – not only IPPC installations. The concept must include data on all types of waste generated and also prevention, recovery and disposal measures have to be defined. Some countries have given national guidelines, provisions and conditions on, for instance, compulsory collection of hazardous waste and waste disposal. (Annex I, Tables 22 and 23)

Guidance provided by the countries is mainly official guidance, like the Austrian guide concerning waste treatment principles in the Federal Waste Management Plan, and general guidance to develop Waste Management Concepts for different industrial activities. In Sweden there is official guidance on waste management for certain industrial sectors and general examples of good waste management in industry. Estonian and Greek applicants seek guidance from private environmental consultancies, which are advised by the permitting authority in Estonia. The German Länder have their own waste agencies, which provide guidance especially on wastes requiring special supervision. Schleswig-Holstein and other Länder provide application forms, which include questions on waste prevention, recovery and disposal. The Czech Integrated Prevention Agency provides support to the state administration, operators and the public in the context of IPPC. In Finland there is guidance explaining the basis and methods for evaluating and classifying waste as hazardous waste. (Annex I, Table 23)
Sweden has some examples of official guidance: “Waste generated in the iron and steel industry”, “Guidance on landfills”, “Guidance on hazardous waste” and “Examples of good waste management in the industry”.

The web site of the UK Environment Agency provides several IPC technical guidances and guidance notes for different business sectors. IPPC cross-sector guidance is also available. Some of the countries provide official application forms, which often also include general guidance on waste prevention, recovery and disposal. At least in Finland and Ireland these forms are available on the Internet. (Annex I, Table 23)

It seems that there rarely is cooperation between environmental authorities and other organisations guiding waste issues in the permit procedure. In Estonia there is cooperation between the permitting authorities and the Environmental Inspectorate, and in Germany, the waste agencies cooperate, while in Ireland the authorities have annual feedback meetings with the Trade Association and NGOs. These two groups will also raise objections to permit conditions. Permit conditions are discussed and commented on in Cyprus by official committees with member agencies and NGOs.

The regulations of the United Kingdom require the regulator to consult other statutory organisations about each IPPC permit application. These always include the relevant health authority, the Food Standards Agency, the relevant nature conservancy council and the local authority (or the Environment Agency where the local authority is the regulator), with other organisations specified according to the nature of the activity. Nine countries out of fifteen do not have any cooperation between authorities and other organisations during the permit procedure. (Annex I, Table 24)

4.2 Application documents

4.2.1 Required waste information in the application

All of the participating countries require the following general information concerning the operation in the application documents:

- description of the processes;
- process flow charts;
- use of raw and auxiliary materials;
- use of fuels;
- use of other forms of energy;
- use of chemicals;
- use of hazardous substances;
- water consumption.

More waste specific information, which is commonly required in the application, consists of the following:

- total estimated amount of generated waste (all countries);
- total estimated amount of generated hazardous waste (all);
- origin of waste (all);
- storage of waste on site (all);
- data on waste recycled (all);
- data on waste recovered (all);
- data on waste disposed (all);
- reuse of water (all except HR);
- transportation of waste (all except DE);
- EWC code (all except HR, SE, UK);
- waste amount per production unit (BE, CY, CZ, EE, ES, GR, IE, IT, SK);
• internal recycling of waste/by-products generated by the applicant (CZ, ES, FI, DE, GR, IE, IT, SE, SK, UK);
• internal energy recovery of waste/by-products generated by the applicant (BE, CZ, ES, FI, DE, IE, IT, SE, SK, UK; in GR rarely).

In addition to the above information, most of the countries also require information on previous and planned measures concerning waste generation. Information on waste prevention, recovery and disposal concerning both previous and planned measures are always required in Belgium, the Czech Republic, Estonia, Finland, Germany, Greece, Italy, Slovakia and Spain. (Annex I, Tables 25–28)

4.2.2 Other required information

Other information required, which gives indirect information on waste, was divided as follow (Annex I, Tables 25–28):
• monitoring plan (all except AT and BE);
• environmental management system (CY, CZ, DE, EE, FI, GR, IE, IT, SK, UK);
• process optimisation (BE, CY, CZ, DE, EE, ES, GR, IT, SE, UK);
• assessment of BAT by the applicant (compared to BREFs or similar installations (CZ, DE, EE, ES, FI, GR, IE, SK, SE, UK);
• substituting chemicals with less harmful substances (BE, CZ, DE, EE, FI, GR, IE, IT, SE, UK);
• risk-screening methodology (CZ, DE, EE, ES, FI, GR, IE, IT, SE).

Belgium pointed out that it has an increasing demand for the assessment of BAT in the environmental impact report, but does not ask for a comparison. Application very seldom require information on packaging (only in Belgium, Estonia, Greece, Italy and Spain) or on minimisation of the consumption of single-use products (only in Belgium, the Czech Republic, Estonia, Germany and Greece). Information about product design is hardly ever collected. Only Belgium, the Czech Republic, Greece and Italy require it from the applicant.

Additional information required in the application, according to the respondents, covers data on education plans or training for the staff at the installation (Cyprus and the Czech Republic), insurance against environmental damages (Finland), accidents, emergencies and environmental liability provisions (Ireland) and auditing systems (the United Kingdom).

In Germany the required information depends partly on the application forms of the different Länder. Italy pointed out that the demands depend on the activity. The competent authorities define the specific requirements for different sectors according to the national guidelines. In Belgium a decision of the Brussels Capital Region from 1993 determines the content of a dossier for the application of an environmental statement or an environmental permit. This document provides all the necessary information and is further accompanied by an environmental impact report, and for the large companies by an environmental impact study drawn up by an external study bureau. The authority investigates whether the application is complete or not. (Annex I, Tables 25–28)

4.2.3 Application forms

Half of the participating countries have applicants use the same generic application form regardless of the sector. The other half have at least some sector-specific application forms. Slovakia has a separate form for landfills and Ireland has, in addition to a general IPPC form, specific forms for timber preservation, intensive
agriculture (pig and poultry), landfills and transfer stations. Finland has sector-specific templates for boiler plants, fish farms, livestock shelters, fur farms, asphalt mixing plants and crushing plants. A generic application template is tailored where appropriate in the United Kingdom. (Annex I, Table 29)

4.3 Permit consideration

4.3.1 Waste management in permit consideration

Waste-related information required in the permit application is presented in the previous section 4.2. In addition to the above information, when evaluating waste prevention, recovery and disposal the authority takes into consideration the monitoring programme of the applicant in eight countries, a cost-benefit analysis in six countries and planned measures for environmental investments in six countries. In Austria also the separation of waste flows must be considered, and in Germany, for example, different studies by the waste agency, experts’ opinions, papers of the federal environment office and guidelines of the German Association of Engineers. In Greece specific measures that are planned to be implemented when upgrading an installation are included in the application. Authorities in the United Kingdom take into consideration also the relative availability of raw materials and the location of the installation. (Annex I, Table 30)

Some Irish examples of specific items to be considered, depending on the site and the nature of the operation, are the following:

- fit and proper person (is the applicant finically and technically competent to operate the facility safely, do they have any previous environmental convictions);
- contamination from historical waste management practices;
- ambient air, water and soil quality;
- cross media issues (pollution load transfer);
- Environmental Quality Standards (EQS) and Environmental Quality Objectives (EQO) for a particular location; and
- specific technical requirements of the Incineration and Landfill Directives.

There are quite few countries which use integrated methods to evaluate waste management, emissions into air, discharges into water and soil together in the permit procedure. Austria and Finland have done studies on or have given guidance related to this, while in Greece the emissions and discharges are evaluated in the permit procedure as a result of the EIA procedure and the subsequent issue of the approval of the permit conditions. In the Irish permit procedure the application form requires cross-media load transfer to be dealt with in the applications. Ireland has no specific tool or method in use, only expert assessment of the application with the help of the process diagrams. The Pollution Emission Registers are also very useful in the assessment. (Annex I, Table 31)

An example of an advanced tool is the “IPPC H1 Horizontal Guidance Note: Environmental Assessment and Appraisal of BAT” published by the Environment Agency for England and Wales. There is also software available accompanying the guidance. One of the aims of the guidance is “to carry out an environmental assessment of the overall impact of the emissions resulting from the installation as a whole, in order to confirm that the emissions are acceptable (i.e. do not cause significant pollution); and identify priority emissions or environmental risks for further improvement”. The guidance is divided into six basic modules and the aim of module 4 (Compare Impacts of Options) is as follows, quoted from the guidance (Integrated Pollution Prevention and... 2003):
The aim of this module is to compare the overall performance of each option for all the environmental considerations assessed in module 3, in order to identify which option represents the lowest impact on the environment as a whole. At the end of this module, the Operator should have:

- resolved any cross-media conflicts that arise between options;
- ranked the options according to their environmental benefit;
- identified the option with the least environmental impact;
- decided whether the option with least environmental impact is BAT, or whether costs need to be taken into account.”

The module contains the following note, which specifies the difficult issue:

“Due to the diverse nature of their impacts upon different receptors, there is no single basis upon which all of the environmental considerations can be compared on an aggregated basis. As such the decision-making process must rely on the professional judgement of the Operator and Regulator to balance these diverse environmental considerations and determine which are considered to be of greater environmental priority. This is an installation-specific judgement, which has to take into account not only the technical characteristics, but also the influences of geographical location and local environmental conditions. In exercising professional judgement, the Operator is required to state the reasoning behind the relative importance attached to each of the environmental factors which leads to the selection of BAT.”

One-third of the countries participating in this project have at least some guidelines on how the choice of waste management measures are dealt within the permit. The Austrian guidelines consist of Waste Management Concepts and the Federal Waste Management Plan. Estonia has a regulation concerning permit application forms and permit tables; one part of which deals particularly with waste management. Cyprus mentioned binding rules and guidance for different sectors as guidelines. (Annex I, Table 32)

According to the replies, there are some special problems in considering the permit conditions on waste prevention, recovery and disposal. In Austria the main problem is that the competent authority must not affect a project in a way that the character or the main intentions will be changed. Ireland points out that the permitting authorities do not have process engineering experts in-house to set practical and meaningful waste prevention or cleaner technologies for all the categories of activity. However, the permit must encourage operators to examine their processes – which they know best – and identify where cleaner production possibilities are available. Solutions generated within industry also tend to be readily embraced by industry. There are also problems in permitting and controlling the land-spreading of pig manure waste on third-party land, as these third-party farms do not wish to be controlled with the IPPC regulated industry.

In some countries the main problems are with issues of disposal. In Cyprus there are no proper places yet for the disposal of electronic wastes and car tyres, and in Greece there can be problems when the disposal takes place outside the installation but there are no approved disposal areas. In Germany and the United Kingdom there might be problems in such cases where non-homogenous and unpredictable compositions of waste occur, especially as raw material. (Annex I, Table 39)

### 4.3.2 Effects of changes in waste generation on an existing permit

Article 12 (1) (Changes by operators to installations) of the IPPC Directive states that

“Member States shall take the necessary measures to ensure that the operator informs the competent authorities of any changes planned in the operation of the installation as referred to in Article 2 (10) (a). Where appropriate, the competent authorities shall update the permit or the conditions.”
The changes in waste generation can be divided in qualitative and quantitative changes. Sweden stated that qualitative or quantitative changes in waste generation may cause a reconsideration of the permit or permit conditions, if the change is substantial and has significant negative effects on humans and the environment.

In the case of **qualitative** changes, most of the countries reconsider the whole permit or a specific permit condition. The basic principle in the replies for reconsidering the permit or the conditions seems to be consistent with Article 2 (10) (b) of the IPPC Directive, which states that “a change in operation which, in the opinion of the competent authority, may have significant negative effects on human beings or the environment”. This is the situation at least in Austria, Belgium, Estonia, Finland, Sweden and the United Kingdom. (Annex I, Table 33)

In Belgium the authority who has issued the first permit must change the permit if it does not entail the appropriate conditions, including making use of the best technologies available for avoiding, limiting or resolving the threat, nuisance or discomforts for the environment and public health. The authority can also make changes at the request of the permit holder on the condition that the changes do not pose a greater threat or greater nuisance to the environment and public health. During the reconsideration procedure, it is firstly checked whether the change may cause a nuisance. If there is no new nuisance, the condition in question is changed. If a nuisance will arise, an application for a new environmental permit must be submitted for the change.

The permit or the conditions have to be reconsidered only in exceptional circumstances in Ireland, that is, substantial change within the meaning of the IPPC Directive. The Irish permits are written in a way that gives certain flexibility. If the change has not been deemed a negative one from an environmental perspective, the remedy is usually found via general enforcement actions and not permit change. (Annex I, Table 33)

According to the regulations in the United Kingdom the change in operation is defined – very similarly with the Directive – as “a change in the nature or functioning or an extension of the installation ... which may have consequences for the environment”. This definition, corresponding to that given in Article 2 (10) (a) of the Directive, may cover changes in operation even if they remain consistent with the existing permit conditions. However, on receipt of the notification, the regulator may determine that permit conditions need to be varied even so. An operator may in any case apply to the regulator for a variation to the conditions of a permit. The United Kingdom points out that there have been few examples in practice as IPPC is still at a relatively early stage. (Annex I, Table 33)

The practical effects on permits or permit conditions are very similar when the changes in waste generation are **quantitative** compared with the situation with qualitative changes.

In Belgium the operator must notify the authority of an expansion, who has 30 days to determine whether a new permit is required or not. If the threshold increases by 25%, the operator will be asked to apply for a new permit. If a new permit is not required, the authority will adjust the permit conditions to correspond with the new situation. The Finnish authorities reconsider the permit conditions only if something else (e.g. volume of production or processes) changes at the same time. (Annex I, Table 34)

### 4.3.3 Other waste-related directives in permit consideration

There are a number of waste-related directives which may affect the IPPC permitting procedure. The most essential ones are probably the Directive on Hazardous Waste (91/689/EEC) and the Directive on the Landfill of Waste (1999/31/EC), which were also mentioned as examples in the questionnaire. Many of the countries state
in their replies that these directives have been implemented in their national legislation and have an indirect affect on permitting.

Austria gives concrete examples of the effect of these two directives. For example, waste data collected in accordance with these directives can influence the permitting procedure, because the Landfill Decree can restrict the disposal of certain types of waste. In Belgium it is always required in the permit that all hazardous waste must be collected by a recognised collector of hazardous waste. Ireland replied that the directives influence specific permit conditions, reporting requirements, compliance dates, and BAT considerations as many of the directives and instruments have specific technological requirements or standards. Additionally, other directives which may have an effect are: the Incineration Directive, Sludge in Agriculture Regulations, Waste Characterisation (Commission decision), the Nitrates Directive, Water Framework Directive, Solvents Directive, LCP Directive, Air Quality Directive, EIA Directive, Seveso Directive and Groundwater Directive. A number of EU initiatives and proposed directives are also influential. (Annex I, Table 35)

4.4 Permit conditions

4.4.1 Conditions for prevention, recovery and disposal

In most countries (varies between eight to eleven countries) the requirement for waste prevention, recovery and disposal is incorporated into the permit as a binding permit condition. The Austrian example shows that through a permit condition an operator can be forced to use less dangerous chemical substances (causing the same effects) in an industrial process in order to reduce the amount of hazardous waste. A condition in Germany is that wastes shall be avoided, unavoidable wastes recycled and non-recyclable wastes disposed of. The operator has to describe the measures in the application. Information on waste provided for the application document will become part of the licence document afterwards. If, however, the description in the application is not sufficient, the permit will contain specific conditions and obligations to ensure the compliance with the conditions for granting of the permit. (Annex I, Table 36)

One third of the countries incorporate the requirement for waste prevention, recovery and disposal as a general consideration within another permit, and Croatia is the only country where the requirement is incorporated as a general consideration in the general/recital part of the permit. In the United Kingdom these issues are expected to be addressed by the operator at the application stage. Permit conditions may then be applied, depending on the determination of the application. Disposal and recovery operations may therefore be included in the permit or as a general consideration within the determination process.

According to Belgium’s reply, the requirements are not incorporated into the permit at all. However, the following section, which relates to waste and is in all environmental permits has been formulated based on the decision concerning the waste register.

[...] All the hazardous waste substances such as [...], waste oil and PCB/PCTs must be removed by a collector recognised by the Brussels Capital Region. A proof of receipt must be issued for every delivery of hazardous waste substances, waste oil and PCB/PCTs. The producer of hazardous waste substances, waste oil and PCB/PCTs shall keep a register that at least contains the following information:
- the code and name of the waste substance in accordance with the European catalogue of waste substances;
- the amount of waste, expressed in mass or volume;
- the date that the waste substance was collected;
• the name and address of the collector and transporter of the waste substance;
• the name and address of the addressee of the waste substance;
• the code and name of the treatment method of the waste substance.

The register can consist of an invoice (proof of receipt) for the collection of waste, if it contains the above-mentioned information. In addition, specific conditions may be imposed depending on the situation.

In Italy the competent authorities are developing national guidance and evaluating this issue case by case. (Annex I, Table 36)

Site-specific targets to advance the objectives of waste prevention and recovery in the permit procedure are in use only in Estonia, where the authority can choose this alternative. Site-specific targets are included in Ireland in the Environmental Management Program, and in England and Wales they may be a part of the operator’s EMS or waste prevention plan approved by the regulator. (Annex I, Table 38)

4.4.2 Binding permit conditions in use or in future use

The questionnaire contained a question on what kinds of permit conditions are already in use or will be in use in the future. The conditions in use are presented in Figure 4.1 and the future conditions in the text below. (Annex I, Table 37)

The most frequently mentioned binding permit conditions in use are improvement of recovery and use of BAT in waste management (Figure 4.1). Waste generation per unit of product and/or minimisation of the use of packaging materials are in use in four countries only (the Czech Republic, Estonia, Greece, Ireland).

Binding permit conditions that will be taken in use into the future are:
• waste generation per unit of product (GR, SK, UK)
• improvement of recovery (AT, DE)
• use of raw materials (DE, SK)
• minimisation of the use of packaging materials (CY, UK)
• linked to the waste prevention plan (CY, GR)
• obligation to examine different alternatives for managing waste issues (GR)
• obligation to examine different alternatives for waste prevention (CY, GR)
• use of BAT in waste management (CY, SK)
Belgium and Italy are considering and developing national guidelines. Other binding permit conditions were mentioned, too. Ireland has conditions on waste testing, record-keeping and reporting in use. Since the year 2000, IPPC installations are required to report their waste production as a ratio of raw materials used to waste produced. The Irish opinion is that this is a much fairer means of assessing the wastefulness of an installation and it does not penalise an installation’s productivity. Sweden and the United Kingdom have requirements on storage of waste and, in addition, the United Kingdom has conditions on handling and record-keeping. A ban of using complex-building agents in certain industrial sectors will be a binding permit condition in Germany in the future. (Annex I, Table 37)

4.4.3 Some examples of permit conditions

The permit conditions can be divided into the following groups (Annex I, Tables 36–38 and 40):

- minimisation conditions;
- measures to minimise the waste amount;
- substituting raw material;
- records of waste;
- audits and assessments;
- plans and programmes;
- recycling or recovery;
- storage, handling and disposal.

Minimisation conditions

- Limitation of HCl production as a by-product and commitment to set up a recovery scheme for inevitably produced HCl (Germany).
- Use of certain chemical substances is prohibited, in the case of a significantly higher potential of risk (Austria).
- One proposal from the Finnish project on waste prevention in environmental permitting (see Annex IV) is as follows: "The quantity of metal scrap arising in the production shall be reduced in such a way that the respected amount of waste in year x is 5% less than in year y".

Measures to minimise the amount of waste

- The operator shall at the latest by year x submit to the competent authority a proposal concerning measures to minimise the total amount of wastes arising in the production (Finland).
- The operator shall in connection with the annual report deliver to the competent authority an account of the implemented measures to reduce the amount and hazardousness of waste during the past year (Finland).

Substituting raw material

- The operator can be forced to use less dangerous chemical substances (causing the same effects) in an industrial process in order to reduce the amount of hazardous waste (Austria).
- The operator shall maintain the raw materials table or description […] and in particular consider on a periodic basis whether there are suitable alternative materials to reduce environmental impact (the United Kingdom).
- The operator shall ensure that incoming water use is directly measured and recorded (the United Kingdom).
Records of waste
• The operator shall maintain and implement a system which ensures that a record is made of the quantity, composition, origin and delivery date of any waste that is received for disposal or recovery at the installation (the United Kingdom).

Audits and assessments
• The operator shall carry out periodic waste minimisation audits and water use efficiency audits (the United Kingdom).
• At least every x years, the operator shall carry out a systematic assessment and review of the management of all wastes generated [...] The purpose of the assessment shall be to identify methods of avoiding or reducing the impact on the environment of the disposal of waste (Scotland).

Plans and programmes
• The operator shall make a plan for the management of waste (Sweden).
• The waste management plan shall be approved by the inspection authority (Sweden).

Recycling or recovery
• If possible, in the procurement of chemicals and raw material, returnable or recyclable containers or packages shall be used and small packaging sizes and single-use packages shall be avoided (Finland).
• The used solvents have to be recovered, recycled on site or given to a licensed collector (Belgium).
• Waste paper has to be collected and eliminated, with recovery as the objective (Belgium).
• Waste produced at the installation shall be recycled or recovered unless technically and/or economically impossible (the United Kingdom).

Storage, handling and disposal
• Used oils should be collected properly and given to a licensed collector for further treatment (Cyprus).
• The operator shall identify the best practicable environmental options for waste disposal (the United Kingdom).
• The operator shall design, maintain and operate all facilities for the storage and handling of waste on site such that there are no releases to water or land during normal operation and that emissions to air and the risk of accidental releases to water or land are minimised (the United Kingdom).
• The operator shall maintain a record of the location, estimated quantities and types of all wastes stored within the installation. The said record shall be updated [daily, weekly or quarterly] (Scotland).
• Sludge shall in the first place be incinerated, or if it is contaminated, be composted (Sweden).
4.5 Best Available Techniques (BAT) in the permit procedure

4.5.1 Usefulness of the BREFs

The usefulness of the BREFs lies in the comparison of the installation with technologies used in other installations (the Czech Republic). Some countries saw the BREFs as useful without any specific comments (Cyprus, Estonia, Greece, Italy, Slovakia). The BREF notes are used to draft technical guidance in the United Kingdom. As a result both the BREFs and the technical guidance set the position for industry to work to and they are also helpful in this respect. Austria replied that the practical value of all BREFs published so far is rather limited, as only little information is given about topics like waste prevention, recovery and disposal. (Annex I, Table 41)

4.5.2 Data and problems in BREFs

There is not much information or quantitative data given about waste prevention, recovery and disposal in the BREFs. Waste is generally not dealt with in the same detail as, for example, air or water emissions (Austria, Estonia, Finland, Germany, Ireland, Italy, Sweden). The opinion of the United Kingdom is that BREFs provide useful indicative benchmark data and information. (Annex I, Table 43)

According to the replies of Cyprus, Germany, Greece and Ireland, there are differences in the BREFs between new and existing installations. Five countries’ view is that there are no differences. (Annex I, Table 42)

Almost all of the countries answered that specific problems with BREFs arise because of the lack of data on waste issues. BREFs reflect industry exchange of information on techniques in waste prevention and recovery. BREFs do not contain much detail on waste management BAT (the United Kingdom). Waste prevention is not dealt with in detail, usually only in outline. The focus seems to be on safe disposal and some recovery; there is also wide variation concerning which production residues are wastes (Ireland). The BREFs are very large (Cyprus) and they are available only in English (Germany). Country-specific sectors based on oil-shale are not dealt with in the BREFs (Estonia). (Annex I, Table 44)

4.5.3 Development of BREFs and use of other sources

A general note is that completion of the current BREF production programme should be the main focus without recognising that a balance of effort is required to ensure that the documents do not go out of date too soon (Germany, the United Kingdom). Finland said that all should be soon revised because they lack data regarding waste.

Another general opinion concerning the development of the BREFs is that there should be more specific information on prevention, recovery, recycling and monitoring the amount and quality of waste. Additionally, there should be information on the consideration of cross-media impacts. Ireland points out that consistency within sectors in relation to the classification of certain material streams is an important issue, in other words, are they wastes or by-products. Future BREFs should include a description of various feasible production techniques and their environmental assessment (Austria), a definition of analytical methods for waste material and standards for quality monitoring (Germany) and also more information on techniques and benchmarking for sector performance (the United Kingdom). On
a general note, the completion of the current BREF production programme should be the main focus whilst recognising that a balance of effort is required to ensure that the documents do not go out of date too soon (the United Kingdom). (Annex I, Tables 45-46)

BREFs are the most common sources for defining BAT. However, there are also other sources, such as the US Environmental Protection Agency, Environment Canada, the UK Environment Agency, and Dutch (soil, water, air), German (“TA Luft” and “TA Abfall”) and Australian technological standards and industry norms. In addition HELCOM Recommendations and World Bank Documents are used. (Annex I, Table 47)

4.5.4 National sector evaluation of BREFs

In some countries there is some kind of evaluation of the BREFs. The Federal Environment Agency in Austria has done reports on the following BREFs: cement and lime, pulp and paper, iron and steel, non-ferrous metals and glass production. State-of-the-art studies for various industrial sectors (refineries, power plants, chemical industry) also exist. (Annex I, Table 48)

In the Czech Republic, the Ministry of the Environment ensures monitoring of developments in the best available techniques contained in documents of the European Communities, and by publishing an explanation thereof from the standpoint of the environmental impact of the best available techniques within its competence, it evaluates the application of the best available techniques. Working groups evaluate the BAT and try to specify and define BAT in the Czech conditions.

In Finland a sector evaluation of BAT is being made by some national subgroups that have been established under the Technical Working Groups, for example, the hot galvanizing subgroup and the chemical finishing of metals group. In Ireland there is BATNEEC Guidance, but it is very basic in respect of waste prevention in particular.

In Germany there are VDI guidelines (guidelines of the Association of German Engineers), which include questions of waste prevention, recovery and disposal. In addition, Germany has General Model Administrative regulations on the prevention and recovery of waste for several industries. These regulations were developed several years ago and have not been updated since. They only offer information and hints on typical wastes and possible procedures.

The Environment Agency in the United Kingdom follows a sector based approach to the management of environmental issues; it is not just confined to IPPC ‘BAT’. The Department of Trade & Industry is supporting the development of Sectoral Sustainability Strategies to provide business sectors with a framework to identify and manage economic, environmental and social risks in an integrated way. (Annex I, Table 48)
5.1 General background

An environmental management system (EMS) is a voluntary tool for organisations to manage their environmental impacts and to achieve their environmental objectives and targets. EMS is a part of the operator’s overall management system and with its help the operator aims at continual improvement of the organisation’s environmental performance. According to the EMAS Regulation, an EMS “includes organisational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy” (EMAS Regulation (EC) No. 761/2001, Article 2). The activity or sector defines how EMS is implemented in the organisation. The implementation can be done in many different ways, but the core elements (e.g. environmental policy and environmental programme) of the environmental management system shall always be included in the process (EMAS HelpDesk).

The most common environmental management systems are the systems based on the ISO 14001 Standard and the EMAS Regulation. An external auditor verifies an operator’s environmental management system under both systems and also validates the environmental report (environmental statement) in EMAS. This confirms the effectiveness of the system and increases the validity of the information the operator is giving to the public.

The International Organisation for Standardization (ISO) published the ISO 14001 Standard in 1996. Since its publication, many organisations have implemented the Standard and, up to the end of December 2003, at least 66,070 certificates under ISO 14001 had been issued in 113 countries and economies (ISO Central Secretariat, 2003).

The European Community Eco-Management and Audit Scheme (EMAS), which is based on the EMAS Regulation, is meant for organisations operating in the European Union and the European Economic Area. It has been available for companies in the industrial sector since 1995 and for all companies and organisations of the private sector and public administration since 2001. In September 2004 the total number of EMAS sites was 4,029, in 3,021 EMAS-registered organisations (EMAS HelpDesk).

EMAS consists of ISO 14001 as the environmental management system and a public environmental statement; the EMAS and ISO 14001 systems are not exclusive of one another. The main difference between the two is that EMAS always requires an environmental statement. The EMAS Regulation also requires that the organisation complies with the environmental legislation. Figure 5.1 presents the steps to EMAS.

The EMAS Regulation requires that “Member States should consider how registration under EMAS in accordance with this Regulation may be taken into account in the implementation and enforcement of environmental legislation in order to avoid unnecessary duplication of effort by both organisations and competent enforcement authorities” (Regulation (EC) No. 761/2001, Article 10). Quite many studies show that the operator’s EMS can shorten the time used in permitting and inspection procedures (ten Brink et al. 2003, Dahlström & Skea 2002,
Howes 2002). In this study the main focus concerning EMS has been to analyse the role of voluntary environmental management systems in waste-related conditions in environmental permits.

5.2 EMAS and ISO 14001

In most countries the role of the EMAS and ISO 14001 systems in the permit procedure is considered background material. An operator may submit information based on EMAS or ISO 14001 as supporting documentation to the permitting authority. Also the applicant may use the data gathered by EMS in the permit application. In England and Wales EMSs are seen as a part of the permit procedure and encouraged under the Environment Agency’s guidance. The Environment Agency and the Scottish Environment Protection Agency both recognise that an operator who obtains EMAS registration or, for example quality certification, may meet a number of requirements of the IPPC permit; however, such verification by the external auditor is not mandatory. Nevertheless, according to five countries (Austria, Cyprus, the Czech Republic, Spain, Sweden) EMAS or ISO 14001 do not have a role in the permit procedure because they are voluntary and because the permit procedure cannot be replaced with any kind of EMS. (Annex I, Table 49)

According to the replies, the support given in legislation for the use of the EMAS system is more common than the support for the use of the ISO 14001 system (see Figure 5.2).

In Austria EMAS-registered organisations that alterate or change their installations do not necessarily require a permit to do so. However, they must report alterations or changes to the competent authority. They also need to inform the public, present an environmental declaration and a written statement by an environmental expert to certify that environmental matters and public party rights are not affected and that no legal objections have been raised by neighbours. In Germany, the Federal Immission Control Act empowers the Federal Government to provide means of statutory provisions for relief measures in respect of the
content of the application documents in permitting procedures, as well as for relief measures in respect of the inspection regulations. The Federal Government has enacted the ordinance concerning relief measures in respect of supervision regulations for audited company sites. According to the ordinance, the documents gathered in the EMAS system have to be taken into consideration in the permit procedure and they may replace the application documents when they provide the same information that is needed for the permit procedure. In addition, regulations on the Federal Länder level give advantages to EMAS organisations. Neither in Austria nor in Germany does the legislation support the use of the ISO 14001 system. (Annex I, Table 50)

If the amount of processing work done by the permit authority is less than the minimum amount of work on which permit fees are officially based by the Ministry of the Environment, companies may be eligible for a discount of up to 35% on the permit fee in Finland. It can be possible that an operator’s EMS is a factor that decreases the workload of the permit authority. In Greece the law 2965/2001, about “sustainable development in the region of Attica”, refers to the mandatory implementation of EMAS / ISO 14001 system until the year 2005 to all “high and medium nuisance” installations that operate in the region of Attica. In Ireland the legislation recognises the need for procedures for environmental management, including corrective actions, and stipulates that these matters can be required in a permit (Section 86 of the Environmental Protection Agency Acts 1992 and 2003). In Italy for all the EMAS installations the permit renewal is every eight years, instead of five as for other installations, and a decrease in the financial guarantees is allowed to the waste management facilities with an EMAS or ISO 14001 system. There is no legal support at the moment in Belgium, but it has been stated that in the near future this kind of support to simplify the administration might be possible. (Annex I, Table 50)

Most of the countries answered that an environmental management system itself does not influence the inspection of waste prevention, recovery and disposal. EMAS or ISO 14001 will not release an operator from the obligation to be inspected, but if the operator can show compliance and better waste prevention, for instance, by using such a system, this of course influences inspections as well. Nevertheless, six countries (Austria, Croatia, Estonia, Ireland, Italy, the United Kingdom) answered that EMAS or ISO 14001 do influence an inspection in that less inspection is usually needed when EMS is in use. The inspection procedure is, in most of the cases, more effective and faster when there is an EMS in use. Sweden answered that the system itself did not influence the inspection of waste-related
issues. However, if the operator can show compliance and better waste prevention, among other things, by using such a system, this does influence the inspections. (Annex I, Table 51)

In England it is the Environment Agency’s view that a robust EMS should lead to improved environmental performance and a consequent reduction in the regulatory burden, including the degree of regulatory oversight an installation receives. In Germany it has been noticed that companies with EMAS can build up trust in cooperation with authorities. EMAS might deliver useful information on waste prevention, recovery and disposal. The ordinance concerning relief measures in respect of supervision regulations for audited sites offers relief from monitoring and reporting obligations for the operator but it does not influence the inspections. In Austria environmental inspections are restricted to a 5-year interval in EMAS organisations if there is no doubt that the operator is complying with the environmental law. In Ireland the Environmental Protection Agency has in the past and for certain matters accepted the annual audits of EMS in lieu of undertaking its own. (Annex I, Table 51)

Some advantages of EMAS or ISO 14001 in the permit procedure were mentioned. Ireland’s view is that an operator with an EMS is generally very aware of the environmental legislation that applies to the organisation, the organisation has compiled much of the data necessary in an application and is well aware of the environmental aspects of the operations. In addition, the organisation has usually embarked on waste prevention and recycling programmes. This means the applications are at a higher standard than others without an EMS, and the operators are pre-sensitised to matters of concern to environmental regulators. Also in Italy and in the Czech Republic it has been noticed that an operator with an EMS can easily supply the information requested by the authority (e.g. permit applications). In England and Wales, the Environment Agency’s view is that a good EMS should incorporate the measures and targets for the management of waste prevention, recovery and disposal. On the other hand, the Scottish Environment Protection Agency is not aware of any specific advantage of the operator’s EMAS or ISO 14001 system in the permit procedure concerning waste prevention, recovery and disposal. Croatia, Cyprus, Estonia, Finland, Germany, Greece, Slovakia, Spain and Sweden have not noticed any advantages either. However, a working group has been set up by the Ministry of the Environment to consider what advantages may arise from EMSs in permitting and supervisory procedures in Finland. (Annex I, Table 52)

The United Kingdom was the only one to point out a possible disadvantage of the operator’s EMAS or ISO 14001 in the permit procedure; that is, the tendency of the operator to rely on the EMS for waste-prevention measures, whereas specific waste-prevention action plans are needed. EMS targets tend to be self-generated by the operator. (Annex I, Table 53)

Only the United Kingdom and Italy answered yes to the question whether the EMAS environmental statement has a role in the permit procedure. In the United Kingdom’s opinion the subject may be referred to in the initial application determination. According to Ireland, the environmental statement does not influence the decision on the permit, and such a statement will not be specifically identified in the permit. The permit may capture some of the objectives in the statement and incorporate them into a schedule of objectives and targets specified in the permit. (Annex I, Table 54)
5.3 Other environmental management systems

Seven countries (Austria, Belgium, Cyprus, the Czech Republic, Greece, Slovakia, the United Kingdom) answered that they do not have any other voluntary mechanisms or agreements for voluntary waste reduction plans in their countries. However, in some countries there are such mechanisms or agreements in place. Germany mentioned reduction plans for foundry sands, demolition waste and recycling paper as examples. In Croatia there are statements by members of the Croatian Association of Sustainable Development, and in Estonia about ten enterprises have voluntary cooperation agreements with the Ministry of the Environment. In Ireland the company-wide targets for prevention or reduction of waste are often included in the EMS established under the permit of a large corporation. Finland mentioned the international Responsible Care Program and in the United Kingdom such voluntary mechanisms or agreements are under consideration. (Annex I, Table 55)

The role of other voluntary mechanisms or agreements in the permit procedure is in many cases seen as background material. Ireland explains that such systems may find their way into the permit conditions. Croatia does not recognize any role other than a consultative one for the statements of the members of the Croatian Association of Sustainable Development in the permit procedure. Like Croatia most of the countries do not see any role for such systems in the permit procedure concerning waste prevention, recovery and disposal. (Annex I, Table 56)

Most of the countries do not have a mandatory environmental management system for the IPPC installations. However, in Ireland an EMS is mandatory for the IPPC installations but operators may adopt any system as long as it is accepted by the permitting authority. The adopted EMS does not need to be verified according to the EMAS Regulation or certified according to the ISO 14001 Standard. In Greece there is no mandatory EMS for IPPC installations nationally, but the establishment of an EMS according to EMAS or ISO 14001 is referred to as mandatory for the installations in the Attica region (Law 2965/2001). Also in Sweden operators are obliged to have a self-monitoring system, which can be easily described as a minimal environmental management system limited to compliance. It is easy to integrate or harmonise such a system with EMAS or ISO 14001 or other types of voluntary management systems. In Italy the competent authority is working on this issue. (Annex I, Table 57)

Permit conditions for IPPC installations in Ireland, England and Wales require an EMS. In Scotland the overriding requirement is that the operator can demonstrate suitable control over the operation to the Scottish Environment Protection Agency. It is up to the operator to decide how best to demonstrate this; EMS is not required. (Annex I, Table 58)

The permit condition requiring the implementation of EMS in Ireland is as follows: “The licensee shall establish and maintain an Environmental Management System (EMS). The EMS shall be updated on an annual basis and submitted to the Agency as part of the Annual Environment Report (AER)” (EPA IPPC License Database, License No. 186–1). The sub-condition of the EMS condition, which requires the establishment of objectives and targets under the EMS, is: “The licensee shall prepare a Schedule of Environmental Objectives and Targets. The Schedule shall as a minimum provide for a review of all operations and processes, including an evaluation of practicable options, for energy and resource efficiency, the use of cleaner technology, cleaner production, and the prevention, reduction and minimisation of waste, and shall include waste reduction targets. The Schedule shall include time frames for the achievement of set targets and shall address a
five-year period as a minimum. The Schedule shall be reviewed annually and amendments thereto notified to the Agency for agreement as part of the Annual Environmental Report (AER)” (EPA IPPC Licence Database, License No. 186–1). In England and in Wales the condition is: “Without prejudice to the other conditions of this permit, the operator shall implement and maintain a management system, organizational structure and allocate resources that are sufficient to achieve compliance with the limits and conditions of this permit” (Annex I, Table 59).

So-called joint inspections (auditors and environmental inspectors doing the inspection together) are in use in only two countries, Belgium and Sweden. Joint inspections may occur because of cooperation between inspectors and auditors, but they are not systematically organised, as Sweden puts it. (Annex I, Table 72)
6.1 General background

The monitoring of industrial processes and of their impact on the environment is a key element of regulatory control. Industrial operators may be required to carry out monitoring themselves (self-monitoring) and report their results to the competent authorities. Monitoring may also be undertaken by the competent authorities responsible for inspection duties.

Self-monitoring relates to measurements of process conditions, process releases and environmental levels, and reporting of the results by the operator to the competent authorities in accordance with requirements specified in laws, regulations, permits or injunctions. The operator is responsible for complying with what is stated in regulations, directives and permits and ensuring that all necessary measures have been taken to protect the environment. The competent authority is responsible for assessing and ensuring the operator’s compliance. The authority reviews and approves self-monitoring programmes and checks that those are carried out properly. The competent authorities should also arrange independent monitoring to be undertaken to provide checks on the reliability of self-monitoring data, for example, the calibration of instruments, sampling and analysis and the split or replication of self-monitoring samples.

The Reference Document on the General Principles of Monitoring was accepted in 2003. The document provides information under Council Directive 96/61/EC Article 16(2) with regard to monitoring requirements of industrial emissions at source. The reference document (Commission of the…, 2003) sets out seven considerations for optimising permit monitoring conditions:
1. Why to monitor?
2. Who carries out the monitoring?
3. What and how to monitor?
4. How to express emission limit values and monitoring results?
5. Timing of the monitoring
6. How to deal with uncertainties?
7. Monitoring requirements in the permits.

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) defines the minimum criteria for various elements of inspections such as planning, enforcement and reporting.

6.2 Monitoring system and frequency

Almost all of the countries have either an obligatory monitoring system that is a part of integrated pollution monitoring or their own monitoring system for waste prevention, recovery and disposal for IPPC installations. Nine countries have an obligatory monitoring system that is a part of the IPPC integrated monitoring system (Austria, Cyprus, the Czech Republic, Finland, Ireland, Italy, Slovakia,
Spain and the United Kingdom). Belgium, however, answered that it has its own monitoring and reporting system for waste. (Annex I, Tables 60 and 61)

The monitoring frequency of waste-related issues depends on the industrial sector or the site of the installation in many countries. Four countries (Cyprus, Estonia, Finland and Slovakia) answered that waste-related issues are monitored annually.

In Austria waste owners are ordered to document waste streams (type, amount, origin and whereabouts of waste) (Annex I, Table 60). However, there is no special approach for IPPC installations in Austria (Annex I, Table 22). Waste Management Concepts have to be updated with every significant change in an installation or, at the least, every 5 years. Additionally, in accordance with the IPPC Directive (Art. 13) an operator is obliged to check the installation within a period of 10 years to determine any substantial state-of-the-art changes. In cases where there have been substantial changes, all necessary and economically feasible adaptations have to be made immediately. Under certain circumstances the competent authority can enforce such adaptations prior to the 10-year deadline (Section 81(b) of the Trade and Industry Act 1994). In Austria the inspection interval is sector or industry specific. The monitoring frequency of waste-related issues depends on the type of the installation and the permit conditions (Annex I, Tables 60 and 61).

In Belgium the authorities trace waste monitoring, control and analysis measures by sending a questionnaire to the IPPC installations. During the inspection of a plant, the information collected for the waste registers is examined if necessary. The institutions that eliminate non-hazardous waste have to send data in every three months to the Brussels Institute for Management of the Environment (B.I.M.). The institutions that collect and eliminate hazardous waste have to send data every month to the B.I.M. The producer of hazardous waste has to keep a register of waste produced. (Annex I, Tables 60 and 61)

Croatia has regulated that waste generators and handlers shall keep records containing information on the waste type and quantity, place of origin, storage, treatment and disposal methods and sites. The same is also required of generators and managers of hazardous waste. (Law on Waste, Official Gazette 34/95, Art. 18 and 32.) The information shall be submitted quarterly to the town or municipal authority (information on hazardous waste is submitted to the County office or the Greater Zagreb office) who is in charge of environmental protection. (Annex I, Table 61)

Cyprus, the Czech Republic, Finland and Ireland answered that operators carry out the monitoring themselves (self-monitoring). In Cyprus monitoring of waste-related issues is carried out annually. The competent authority assesses the monitoring programme and accepts the plan for follow-ups and measurements during the permit procedure in Finland. The enforcing authority makes occasional verification audits or monitoring in Ireland. Monitoring is carried out continuously and as necessary when hazardous waste is consigned off-site. (Annex I, Table 60 and 61)

In Estonia there is only a self-monitoring system for IPPC installations (Annex I, Tables 60 and 61). An operator shall provide the following information to the permit issuer: 1) any information obtained during the monitoring prescribed by the permit, in compliance with the requirements of the permit; 2) information on each accident, which has a significant impact on the environment or human health, shall be forwarded immediately; 3) every change in the nature or functioning of an installation which might affect the environment; 4) the proposed change of an operator (IPPC Act § 34: (2)). The monitoring of waste-related issues is carried out annually and calculations of disposed waste are reported in a three-month period for the pollution charge system.

In Germany there are ordinances on monitoring of waste flows and on concepts and balances. The operator has to establish balances annually, to update his concept every five years (for wastes requiring supervision and wastes requiring special
supervision). Concepts and waste balances have to be submitted to the competent
authority upon request. (Annex I, Tables 60 and 61)

In Greece all industrial facilities are required to report the quantities of solid
and hazardous waste generated in their facilities to the competent authorities. The
monitoring frequency of waste-related issues depends on the industrial sector and
the site of the installation. Spain mentioned that frequency of monitoring depends
on the installation. (Annex I, Tables 60 and 61)

An internal self-monitoring system for controlling wastes is mandatory in
Sweden. Self-monitoring is a part of the monitoring system related to IPPC. The
monitoring frequency may be regulated in the permit or it can be a documented
routine in the self-monitoring system (internal control system). If needed the
authority may issue an injunction concerning monitoring or specify demands in a
condition of the permit. Waste issues must be reported in the annual environmental
report, which is a legal requirement. In Slovakia the monitoring of waste-related
issues is carried out annually. (Annex I, Tables 60 and 61)

In the United Kingdom the operator undertakes the monitoring of the
installation and submits data to the authority. In England and Wales, installations
are, on the whole, inspected four times a year or more frequently if required. There
is no uniform approach to the inspection of waste-related issues, although in general
an audit-based approach is adopted in order to ensure compliance with the permit
and the adoption of BAT. (Annex I, Tables 60, 61 and 67)

6.3 Monitoring parameters

All countries are obliged to monitor the total amount of generated hazardous and
non-hazardous waste and the storage and transportation of waste. Also accidents
and incidents, waste quality and characteristics, origin of waste and disposal sites are
monitored in most of the countries. Meanwhile, the amount and quality of packaging
materials, minimisation of the use of disposable products and waste amount per
production unit are rarely monitored in the countries. (Annex I, Table 62)

The questionnaire of this project offered a list of 23 monitoring parameters. The
countries picked the alternatives which are in use in their country. Some parameters
are used in a country but they may vary from site to site depending on the type of
installation, the conditions in the permit or other aspects (e.g. in Sweden).

It seems to be quite common that the countries monitor many parameters, but
there are also some exceptions, for example, in Austria, Slovakia and Spain, where
just a few of the parameters are considered. The Czech Republic did not give any
answer to the question. (Annex I, Table 62)

Commonly monitored waste-specific parameters are presented in Figure
6.1 and the other parameters monitored, which give indirect information on the
operator’s waste-related issues, are presented in Figure 6.2.

Austria pointed out that it has only a little experience in carrying out
inspections of the IPPC installations at present. In accordance with the Article 13
of the IPPC Directive, the first inspections have to be carried out by 2007. These
inspections include a check of waste documentation obligations, as listed in the
includes more parameters than Austria listed, all the parameters are checked.

Ireland is one of the countries where the scale of the monitoring parameters
is very wide. In addition to the parameters above, the following requirements and
parameters are monitored in Ireland:
- Landfill Directive requirements (meteorology, etc.);
- Incineration Directive requirements;
- amount of waste recovered on-site;
- amount of waste recovered off-site;
- amount of waste disposed on-site;
- amount of waste disposed off-site;
- on-site waste treatment;
- TFS consignments;
- rejected consignments;
- EPER substances in waste emissions.

![Figure 6.1. Waste monitoring parameters used (Annex I, Table 62).](image)

![Figure 6.2. Indirect waste monitoring parameters used (Annex I, Table 62).](image)

*) England and Wales only; **) Scotland only
In relation to packaging waste the quality and amount are separately monitored and reported to Repak, which is a packaging compliance scheme in Ireland established by a voluntary agreement between industry and the Department of the Environment and Local Government. (Annex I, Tables 21 and 62)

Spain answered that the parameters of the amount of generated non-hazardous and hazardous waste, storage and transportation of waste and disposal site can be monitored by the operator and the authority can ask for those parameters during the site visit (Annex I, Table 62).

6.4 Reporting system

Almost all countries answered that they have an obligatory reporting system for consideration and verification of installations that employ self-monitoring of waste prevention, recovery and disposal (Annex I, Tables 62, 63 and 65). Austria, Finland, Ireland, Italy and the United Kingdom answered that the reporting system is part of the IPPC monitoring system. Other countries (Belgium, Croatia, Cyprus, the Czech Republic, Estonia, Germany, Greece, Slovakia and Sweden) have their own systems. Only Spain answered that it does not have that kind of system. In Spain the reporting system is as follows: the operator can monitor the parameters and the authority can ask for the monitored parameters during the site visit. The information is reported further to the responsible ministry.

An electronic reporting system is used in eight countries (Croatia, the Czech Republic, Estonia, Finland, Germany, Ireland, Italy and the United Kingdom). Sweden is also developing such a system for reporting. The monitoring data are reported either to the inspection authority or to the responsible ministry (or agency) or to both. In most of the countries the responsible ministry or agency also sends the monitored and reported data to the EU (Austria, Croatia, Cyprus, the Czech Republic, Finland, Germany, Greece, Italy, Slovakia, Spain, Sweden and the United Kingdom). Only in Estonia and in Ireland is another authority responsible for sending the data to the EU (Information Centre of the Ministry for the Environment in Estonia and the EPA in Ireland). (Annex I, Tables 64–66)

Austria answered that the report describing all measures taken has to be submitted to the competent authority when an operator’s self-monitoring shortcomings are uncovered and certain adaptations of an installation have to be made to reach a state-of-the art level. There is no electronic reporting system for waste in Austria, although EPER reporting (emissions into air and water, noise, etc.) is done electronically. Monitoring data are reported to the Federal Ministry of Agriculture, Forestry, Environment and Water Management – Department V/1. The Federal ministry reports the data to the European Commission. Statistical data regarding hazardous waste are provided to Eurostat and EEA Copenhagen by the Federal Environment Agency (Topic Center Waste). (Annex I, Tables 63–66)

In Belgium the institutions that eliminate non-hazardous waste have to send data every three months to the B.I.M. The institutions that collect and eliminate hazardous waste have to send data every month to the B.I.M. The producer of hazardous waste has to keep a register of waste produced. (Annex I, Table 63)

The by-law on environmental information systems stipulates the data required for the electronic reporting system in Croatia. Monitoring data are reported to the County offices and the responsible ministry. The ministry reports it further to the EU. (Annex I, Tables 64 and 66)

In Cyprus the operator is obliged to keep records that describe the whole waste management system. Monitoring data are reported to the inspection authority (but not electronically) and copies of forms are sent to the Ministry of Agriculture,
Natural Resources and Environment. The Ministry reports the data further to the EU. (Annex I, Tables 63 and 66)

In the Czech Republic electronic reporting is the only option for reporting monitoring data to the competent authority. Data are sent first to the local authority, who reports the data further to the Ministry of the Environment. (Annex I, Tables 64 and 65)

In Estonia waste-related activities should be reported to the environmental authority at least once a year for entry of the information into the waste register. The state waste register is a database containing information on the type, quantity and origin of waste generated and managed in Estonia, persons operating in the area of waste handling, waste management facilities intended for waste disposal, waste permits and hazardous waste handling licences and transboundary movements of waste. Both an electronic and handwritten report in unified formats are allowed and required in Estonia. The Environmental Ministry’s County Departments collect and control data reports and hand them over to the Information Centre of the Ministry for the Environment, who compiles the annual report to the EU. (Annex I, Tables 63-66)

As one part of the environmental permits, the authorities stipulate how an operator shall monitor emissions and report the results in Finland. In the future all of the IPPC installations will report monitoring data to the inspection authorities electronically. At the moment, the electronic system is in use for a trial period. Therefore, both paper documents and electronic reports are still allowed under the Finnish system. The inspection authority receives the monitoring report and enters the information into the electronic monitoring and environment loading data system of the environmental administration. The Ministry of the Environment reports the monitoring data to the EU. In large installations, monitoring of compliance focuses heavily on the quality and operation of self-monitoring and reporting systems and on the assessment report produced by the operator. For medium-sized and small installations, inspections concentrate more on assessing the overall compliance of the operation. (Annex I, Tables 63 and 64)

German environmental authorities have a specific electronic control and reporting system for wastes (Länder system LAGA ASYS). Monitoring data are reported to the inspection authorities. Most of the Länder have their own special waste agencies, e.g. Baden Wurtemberg SAA. The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety reports all data required by the EU. (Annex I, Tables 64-66)

All industrial facilities in Greece are required to report the quantities of solid and hazardous waste generated in their facilities to the competent authority. An electronic reporting system is in use only for EPER reporting. Otherwise, there is no electronic reporting system in use. Monitoring data are reported to the inspection authority, responsible ministry or the EU depending on the nature of the data, who has requested it or under which legislation it has been requested. The ministry for the Environment, Physical Planning and Public Works (Central Authority) reports the monitoring data to the EU. (Annex I, Tables 63 and 64)

Irish guidance on Annual Environmental Reporting is submitted electronically for automated interrogation (www.epa.ie/licences/AER/aer3.htm). Information is reported to the inspection authority, which is the Environmental Protection Agency (EPA). The EPA also prepares the reports for the EU. (Annex I, Tables 64–66)

Most waste producers and all those who manage waste are obliged to report annually about managed waste quantities and categories to the National Waste Inventory in Italy. The waste information system is based on the National Waste Inventory, which was first established by law in 1994 and reorganised in 1998. The Inventory has its headquarters at the Agency for the Protection of the Environment and for Technical Services (APAT) and regional offices at the Regional Environmental Protection Agencies (ARPAs). All aspects of the waste cycle (from production to
disposal), especially hazardous waste, must be reported every year. Data about waste produced and managed waste must be reported in a compulsory questionnaire (MUD). Waste categories are reported according to the European Waste List (EWL). The National Inventory of Waste is seen as an implementation tool of Regulation 2150/2002/EC on waste statistics. Data are reported to the Agency for the Protection of the Environment and for Technical Services (APAT). (Annex I, Tables 64–66)

Every operator in Sweden pursuant to permitting must submit annually an environmental report to the authorities, in accordance with Swedish legislation. The operator is obliged to report to the inspection authority and the inspection authority reports to the Environmental Protection Agency. The Environmental Protection Agency reports to the EU. An electronic reporting system is being developed for operators’ use. The regional and local authorities already report data to the Swedish Environmental Protection Agency by such a system.

6.5 Inspection and enforcement

All countries except Cyprus have inspection plans for inspecting waste prevention, recovery and disposal activities presently. In almost all of them the plans are combined with other inspection activities (Austria, Belgium, Croatia, the Czech Republic, Estonia, Finland, Germany, Greece, Ireland, Italy, Spain, Sweden and the United Kingdom). Only Slovakia has a separate system for inspecting waste-related activities. Cyprus has recently started annual inspections for examining whether permit conditions are fulfilled. In Austria four regions out of a total of nine have inspection programmes. In the United Kingdom regulators are moving to a risk-based approach and have their own plans and procedures. Information on the United Kingdom’s Environmental Agency’s approach to compliance inspection can be found on the Internet (www.environment-agency.gov.uk/business/444217/444661/444671/?version=1&lang=_e). (Annex I, Table 67)

Inspection activities for waste prevention, recovery and disposal are not completely similar in the countries (Annex I, Table 68; Figure 6.3). The advanced alternatives given in the questionnaire are the same that are demanded in the EU recommendation providing for minimum criteria for environmental inspections (2001/331/EC).

All the countries answered that the authorities make site visits to the installations. Belgium, Croatia, Ireland, Sweden and the United Kingdom answered that they carry out all the same waste-related activities as the recommendation requires. Ireland pointed out that also integrity of waste storage areas, waste stability for landfills, impoundment wall stability for lagoons, TFS documentation, waste segregation and emissions management are inspected. An independent EPA verification of self-monitoring is undertaken in Ireland. In addition to the activities listed in Figure 6.3, the authorities in the United Kingdom make a review of waste audit procedures and records. (Annex I, Table 68, Figure 6.3)

In Austria, Cyprus, the Czech Republic, Estonia, Finland, Germany, Greece and Italy either “consideration of environmental audit reports and statements” or “monitoring achievement of environmental quality standards” is inspected or neither is inspected. As far as permit conditions necessitate, further inspections are carried out in Austria. Authorities in Slovakia and Spain “check the relevant records kept by the operators” and “the premises” during the site visits. Additionally, the Slovakian authorities check the relevant equipment at the site. (Annex I, Table 68)
Figure 6.3. Inspection activities for waste prevention, recovery and disposal in different countries. (Annex I, Table 68)

The frequency and determination of routine site visits vary quite a lot in IPPC installations in different countries. Belgium, Cyprus and Estonia carry out site visits to IPPC installations annually. The Czech Environmental Inspectorate carries out site visits that include the whole waste management. Each enterprise is checked approximately every year. In the Czech Republic, site visits will be started at IPPC installations in 2004. In England and Wales, the standard frequency for IPPC installations is quarterly, but the inspection interval may be adjusted based on an assessment of risk and an operator’s performance. In Scotland, inspection frequencies depend on the type of an installation and the outcome of a risk assessment, but, as a minimum, inspections are done at least twice per year and up to 12 times per year (and some sites may warrant further inspection). (Annex I, Table 69)

In Finland the frequency of routine site visits to IPPC installations varies approximately from once a year to once in three years depending on the region. Most of the routine inspections relate to a permit application and most of the extra inspections to waste management. In Slovakia there are no site visits arranged yet. (Annex I, Table 69)

Many factors have to be taken into account when determining the inspection frequency in Austria, Germany, Ireland, Italy, Spain and Sweden. In Austria it depends on the type and size of an installation, while in some provinces and for certain IPPC sectors there are annual inspection programmes. Germany pointed out that the site visit frequency depends on the type and size of installations. For example, IPPC installations including Seveso II installations are inspected annually and the other IPPC installations once in two years (depending on the inspection plans for the Länder). In Ireland the frequency of inspection is influenced by many factors such as the complexity of operation, compliance history, public complaints, risk and incidents. The frequency can vary from one site inspection per year for simple low risk operations to 12 or more visits per year for complex sites where operational practices are poor. In Spain site visits have been made since 2000 to get information and data on the IPPC installations, but the frequency depends on the site and what politicians want. In Sweden the frequency of inspections is to some extent irregular and means-tested. (Annex I, Table 69)

Only Germany, Ireland and the United Kingdom have some guidance on how often inspections covering waste-related issues should be carried out. In Estonia the IPPC Act stipulates how often the Environmental Inspectorate shall inspect the compliance of installations and their activities. In Germany the Länders have drawn up their own inspection planning guidelines. The United Kingdom has published, for example, a SEPA risk assessment manual with the minimum frequency of inspection and maximum determined by site performance. (Annex I, Table 70)
An interesting question is whether there is any special approach to the waste inspections during the site visits. In Cyprus the waste-related issues are dealt with by examining production procedures, records, impacts upon the environment or human health, and by taking samples for chemical analyses. In Ireland the waste-related issues are dealt with similar to any other emissions related matters. Additionally, the records of where waste goes and who takes care of it are given careful scrutiny because of the illegal waste trade. (Annex I, Table 71)

The Waste Department of the Slovak Inspectorate of the Environment has elaborated several guidelines for site visits – depending on the waste-related activities that are subject to control (e.g. reporting the data, shipment of waste, transboundary shipment of waste, handling of waste, handling of hazardous waste, disposal of waste, recovery of waste). Sweden pointed out that the authority may focus on the results, the measures taken by the operator or on deficiencies in the self-monitoring system to avoid a problem in the future or to improve the work already done or on a combination of these aspects. The point of view depends on why the site visit is conducted. (Annex I, Table 71)

Joint inspections are carried out in some special cases. In Belgium and Sweden joint inspections may occur because of cooperation between inspectors and auditors. In Belgium when a plant is a candidate for an eco-label, the authorities consult the auditors. In Sweden joint inspections are not systematically organised. In the United Kingdom joint inspections for COMAH-regulated sites are carried out jointly with the health and safety executive. (Annex I, Table 72)

Most of the countries answered that inspection authorities and prosecution or police authorities co-operated on waste-related issues (Austria, Belgium, Croatia, Finland, Germany, Ireland, Italy, Slovakia, Spain, Sweden and the United Kingdom). For example, the police will more likely be involved in serious offences and those involving organised criminal activity in the United Kingdom. In Greece the inspection authorities and prosecution or police authorities co-operated only in rare cases. Co-operation in the Czech Republic between authorities is non-existent. The same is true for Cyprus although co-operation is allowed according to law. In Estonia the Environmental Inspectorate has competence in prosecution tasks, but police can be involved if there are specific problems with enforcement. (Annex I, Table 72)

In Finland the authorities arrange courses on environmental offences, but not only on waste-related issues. The courses are arranged for environmental authorities, the key prosecutors in environmental offences and police representatives. The Finnish national group for monitoring of environmental offences publishes an annual report of environmental offences in Finland and develops co-operation between various supervisory authorities. In Sweden the inspection authorities are obliged to notify the police if a permit is violated, in accordance with legislative provisions. There are procedures for co-operation when it is needed, otherwise the inspection authorities work by themselves. (Annex I, Table 73)

Inspection reports should cover detailed information on waste prevention, recovery and disposal in the countries. Austria, the Czech Republic, Finland, Germany and Greece mentioned that, at the very least, the amount, quality and origin of waste, overview of compliance and further actions should be included in the inspection report. The actions taken (in all of the countries except Austria) and storage of waste (in Austria, Finland, Germany, Ireland and Slovakia) are also included in the inspection report. Management of waste, (Cyprus and Italy), transportation of waste (the Czech Republic), comparison with previous years (Finland), records, accidents and progress on EPM Objectives & Targets (in Ireland) should be listed in the reports in some of the countries. Estonia mentioned that the obligation of inspection reports is not enforced yet. (Annex I, Table 74)

If waste-related permit conditions are not fulfilled in the operation of a facility, inspection authorities have different means to react to the situation in the countries. Belgium, Finland, Germany, Spain and the United Kingdom answered
that they can use all of the alternative actions given in the questionnaire (see Figure 6.4). It is also possible to use decommissioning or dismantling (in Germany) and formal warning letters (in the United Kingdom). Slovakia answered that only fines or penalties are used. (Annex I, Table 76)

In Austria the competent authority may impose administrative orders to force operators to fulfil permit requirements. In a case of ongoing non-compliance the authority may take all necessary measures at the operator’s expense. In Estonia the amendment of permit conditions is also used. In Ireland the inspection authority can carry out its own investigation or emergency remedial work and charge costs to the permit holder in cases of an incident or illegal activity. In Sweden the inspection authority issues an injunction concerning measures that must be taken or concerning interruption of the operation. The authority can combine an injunction with an administrative fine and is obliged to notify the prosecutor if a condition or a permit is violated. Also closing of the installation is possible in Sweden. In Spain the first action is to send an operator an enforcement notice but also other enforcement actions can be used. The green police has the competence to react to criminal activities. (Annex I, Table 76)

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**In serious cases; **) England and Wales only

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7.1 General questions about access to information

Access to environmental information has been emphasised in the European community environmental policy after the signature of the Aarhus Convention in 1998. 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 waste-related issues. Nevertheless, the differences in Member States’ national legislation and confidentiality clauses clearly points to different interpretations of how the EU legislation should be implemented.

The questionnaire showed that different countries have different interpretations of what can be declared confidential information. The countries participating in the seminar felt that transparency in permitting should still be the general rule in giving information on waste prevention, recovery and disposal to the public, while confidentiality clauses should be seen as an exceptional case. The conclusion was that the Waste Framework Directive should be amended to reflect the openness of the Aarhus Convention and the IPPC Directive. A general harmonisation of the articles in question and defining what can be declared confidential is needed.

7.2 Access to information in the permit procedure and monitoring

All of the countries participating in this project have as a main principle in their national legislation public access to environmental information. At the same time, most of the countries have limitations in their national legislation on making public the data on waste prevention, recovery and disposal during the permit procedure. (Annex I, Table 77 and 78)

Usually the restrictions on public access are stated in another relevant state law. The reasons for restrictions may be for example, national security, international relations, individual or economical reasons or inspections by authorities. Five of the countries (Croatia, Ireland, Italy, Slovakia and Sweden) answered that the information in the application and also monitoring data are always made public. Eleven countries mentioned some cases where the information in the application can be declared confidential (Austria, the Czech Republic, Germany, Greece and the United Kingdom) or partly confidential (Cyprus, Estonia, Finland, Ireland, Spain and Sweden). (Annex I, Tables 79 and 80).
Austria answered that the 1994 Industry and Trade Act obliges the competent authority to inform the public about an existing permit application by means of certain mass media (newspapers). Public access to application documents has to be made possible within six weeks (section 356(a)). Everyone is allowed to comment on the application. Business secrets require an evaluation whether the right of public information is stronger than the operator’s need for privacy. The competent authority has to balance the public interest in the free flow of information versus the operator or third party interest in privacy. In practise public access to sensitive data is prohibited if it can cause damage to the operator or to the third party rights or can threaten the work of the competent authority. In these cases the data in the application can be declared confidential, for example, all data regarding business secrets. Otherwise, in accordance with the Environmental Information Act (section 4 (2)) all the data concerning monitoring must be available to the public. (Annex I, Tables 77 and 78)

Belgium answered that it does not have confidentiality clauses in national legislation on making public the data on waste prevention, recovery and disposal during the permit procedure. The entire application file must be available for inspection during the public enquiry. On the regional level, the Decree of 29 August 1991 regulates access to information concerning the environment in the Brussels Capital Region. On the other hand, the Decree concerning environmental permits (dated 5 June 1997) demands that for each permit application a public enquiry has to be organised with the opportunity to inspect the application file, make comments in writing, and be heard by the consultation committee that is organised after the public enquiry. (Annex I, Tables 77 and 78)

In Croatia the law on environmental protection includes the public participation principle. According to the law, citizens have the right to timely information on environmental pollution, on measures undertaken and on related free access to environmental data. In accordance with Article 49, the authorities and legal persons holding the environmental data must ensure public access to the data, unless another special law classifies the data as state, military, professional or business secrets. The public must be informed of environmental pollution and the protection measures to be undertaken (Art. 51). The application and monitoring data are public. (Annex I, Tables 77 and 78)

There is a law on free access to environmental information (125(I)/2000, to be amended) in Cyprus. The law regulates the publishing of data relating to waste prevention, recovery and disposal during the permit procedure. In exceptional circumstances the data in the application can be partly declared confidential, if the applicant asks that a secret procedure not be revealed. For example, data on product characteristics can be declared confidential. (Annex I, Tables 77 and 78)

National legislation (Act no. 76/2002 Coll. on IPPC) in the Czech Republic states that the authority must send the application for evaluation to the parties within seven days of the date of receiving an application. Within the deadline the authority must disclose the application to the public on the notice board of the public administration. The authority and the municipality must display this information on their official notice boards for a period of 30 days. Within this period of time, any person may give an opinion on the application. The authority must also provide the application to the affected state government for public disclosure, where it will proceed in accordance with international agreements binding the Czech Republic. The authority must ensure protection of business secrets, personal information and other information protected pursuant to the special regulations, if this information is designated as protected in the application. Some general information may not be so designated. In practice all waste prevention-related data, product characteristics, total waste generation, the quality and characteristic of waste, waste disposal and risks related to waste management are information that
can be declared confidential. Also monitoring data can be declared as confidential. (Annex I, Table 77)

The IPPC Act provides for access to information on permits in Estonia. Public notices can contain information on applications for permits, granting of permits, accessibility of information, positions of the public, public sessions and registers of integrated environmental permits in the law. Information concerning the building design or activities of an installation, composition or use of certain raw materials, chemicals or other materials or products may be declared confidential, if such information is submitted as a separate part of the application and is clearly marked with the word “Ärisaladus” [business secret]. Information bearing such a notice may be made public by the issuer of permits with the consent of the applicant unless otherwise provided by the law. In Estonia data concerning waste prevention, recovery and disposal in the application can be declared confidential but monitoring data is always made public. (Annex I, Tables 77 and 81)

Public access is the main principle of environmental information in Finland. The whole permit application document must be posted for 30 days and the location of the document must be mentioned in the publication announcement (Environmental Protection Act 86/2000). The authorities are also following the Act on the Openness of Government Activities (1060/2002). According to the law, documents are secret if they contain information on professional secrets or comparable business information, if access would cause economic loss to the corporation, or other entity, or if access would reduce the opportunities for procurement, investment, financing or debt service on favourable terms. In addition, the national defence forces have certain exceptions. Only in rare cases can data relating to waste prevention, recovery and disposal be declared secret. The information in the application can be declared partly confidential, for example, if it is a part of the process modification. In practice data on product characteristics can be declared confidential. Unlike the application data the monitoring data and inspection reports are always made public in Finland. (Annex I, Tables 75, 77 and 81)

The Federal Immission Control Act prescribes a permit procedure including access to information and public participation for IPPC installations in Germany. The law states that if the documents submitted are complete, the competent authority must give public notice of the project in its official gazette and, additionally, in any daily newspapers as are widely read in the area where the installation will be established. The application and supporting documents must be made available for public inspection for a period of one month following such notice; and objections raised against the project may be lodged with the competent authority in writing, until the end of two weeks after expiry of the inspection period. (Art. 10 para. 3). After the expiry of the period allowed for objections, the licensing authority must discuss the arguments against the project with the applicant and with those who have raised them (Art. 10 para. 6). The permit must be sent to the applicant and any persons who have lodged objections (Art. 10 para. 7). The delivery of the permit to those persons who have lodged objections can be replaced by a public notice (Art. 10 para. 8). The documents that contain trade or industrial secrets, must be marked accordingly and submitted separately. Where this can be done without disclosing the secret contained in such a document, the contents thereof must be described in sufficient detail so as to enable third parties to assess whether and to what extent they might be affected by the installation concerned (Art. 10 para. 2). All the data in the application can be declared confidential, for example, data on product characteristics or the quality and characteristics of waste. According to the Environmental Information Act (Art. 8) monitoring data is public on request but can be declared confidential if the question is about trade or business secrets. (Annex I, Tables 77, 78 and 80)

In Greece the EIA report has to be made public, in the prefecture council and to citizens (on request) within a specific time period. After this period, only the
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permit (the environmental conditions of the EIA) is publicly available. According to the national legislation, industries related to National Security issues who produce products for the army are excluded from the obligation on making any data public available. Concerning waste prevention, recovery and disposal all waste prevention-related data, product characteristics, total waste generation, the quality and characteristic of waste, waste disposal and risks related to waste management can be declared confidential.

The waste licensing system in Ireland is open and transparent. The public has access to the application documentation. Any person may make a written submission to the EPA in respect of an application for a waste licence. Submissions are made available for public inspection and are considered by the EPA in deciding on the application. Every person who makes a submission is notified of the Agency’s proposed decision on the application. Subsequently, any person may make an objection, accompanied by the appropriate fee, to a proposed decision by the EPA on an application, within 28 days of the notification of the proposed decision. There are only very limited circumstances where, and at the discretion of the EPA, limits are placed on the publicity of application or monitoring data. Only rarely is the information deemed confidential; mainly for the pharmaceutical industry. In practice the data of product or waste characteristics can be declared confidential. (Annex I, Tables 80 and 82)

The main principle in Swedish legislation is public access to official records. This means that all documents handed in to or created by Swedish authorities, the Swedish parliament and municipalities are made public and should be made available to the person asking for it if there are no limiting regulations. The principle of public access to official records is restricted by the Official Secrets Act. The reasons given are, for example, protection of Sweden’s security, international relations, circumstances of a personal or economic nature, preservation of fauna and flora and inspection by authorities. The data in the application or monitoring data concerning waste prevention, recovery and disposal can be declared partly confidential. Sweden considers that the national provisions function quite well and there has been no difficulties on making the data available to the public. (Annex I, Tables 77–79)

Applying for an integrated permit is public information in Spain. Also the public is informed when the permit resolution is made in Spain. The responsible ministry or the general director has an essential role in confidentiality questions. For example, for political or legal reasons the responsible ministry or the general director can decide if the data in the application or monitoring data will be declared (partly) confidential, for example product characteristics, risks related to waste management or warnings for not complying with the permit conditions.

In the United Kingdom regulations require that a full public consultation is carried out at the application stage and at any subsequent substantial variation to the operation of the installation. Regulations include information which must be included in public registers and replicates the requirements of Article 15 of the IPPC Directive. Emissions data are made available through the web-based Pollution Inventory. Commercial confidentiality may be claimed as well as national security. Also monitoring data can be declared confidential for reasons of national security. Otherwise the monitoring data is always made public. The regulator must assess such claims and the operator has a right of appeal if there is no agreement at this time. In practice the data on product characteristics, total waste generation, the quality and characteristic of waste, waste disposal and risks related to waste management can be declared confidential. (Annex I, Table 77)
7.3 Access to information in inspection

The publicity of inspection reports varies in different countries. Four of them (Finland, Ireland, Italy and Sweden) have answered that the reports are public as a whole. In Slovakia the inspection reports are made public but only when they are requested by the public. Four countries (Croatia, Cyprus, Germany and the United Kingdom) have answered that only part of the reports are public. In Germany parts of the reports are public on demand according to the Environmental Information Act. The United Kingdom has specified the national prevailing usage that the inspection reports are placed in working files but any actions or variations, enforcement actions and so on are placed in the public register. (Annex I, Table 75)

Sweden does not have a list of data that can be declared confidential. Each case is decided separately. According to Swedish legislation it is therefore not possible to give a general answer to the question. (Annex I, Table 81)

Austria answered that inspection reports are declared confidential. Belgium assessed that inspection reports are partly public and specified that the inspection reports are placed in working files, but the actions undertaken can be consulted. Greece answered that inspection reports are available to the other public authorities. In the Czech Republic the inspection reports are seen as background material for possible administrative procedures and this is why the reports are available only to the participants in the procedure; not to the public. In Spain the reports can be either public or partly public. They can also be declared confidential. (Annex I, Table 75)
Conclusions

8.1 Key difficulties

In the seminar the difficulties concerning waste-related issues were discussed in general and the following issues were seen as key difficulties:

8.1.1 Definitions

Defining waste, waste prevention and waste recovery in practice was considered to be very difficult. Of these issues the hardest to define is waste prevention.

8.1.2 Implementation of the directives and national laws

The working group came to the conclusion that the content in Annexes II A and II B to the Waste Framework Directive do not cover the requirements of the IPPC Directive and especially its focus on waste prevention.

The practical implementation of the Waste and IPPC Directives in matters pertaining to waste issues throughout the countries varies too much. Because the definition of waste, and especially waste prevention, is not clear enough, there are practical difficulties in enforcement and supervision.

There is no harmonisation of disposal and recovery activity codes in the Waste Framework Directive and the TFS register.

8.1.3 Application documents

Electronic submission of application documents is not possible in every country. Companies are concerned about providing confidential production data.

8.1.4 Guidance

There are no EU-wide guidelines for definitions of waste, waste prevention and waste recovery. Not every country has guidance on how to prepare an environmental permit application. There is a lack of technical guidance, for example, for benchmarking information on different industrial operations.

8.1.5 Permit consideration

Despite their expertise, regulators often lack in-depth knowledge of production and industrial processes. In most cases, industrial representatives are much more aware and knowledgeable of these processes. The permits should be carefully drafted in order to encourage innovation.
Uniformity of permits in one country or in the EU is not yet ensured. There could be conflicting priorities between cross-media demands of the IPPC Directive.

8.1.6 Use of BREFs

One of the difficult questions was to find enough information of waste prevention in the BREFs. In addition, the use of the BREFs varies in the countries because they have not been translated into all the languages. It is difficult to specify key performance indicators of production regarding waste generation.

8.1.7 Publicity versus confidentiality

In some countries industrial sector is prepared to reveal more information than in others; it is always a slow process to change attitudes. Some data on waste-related issues can be considered confidential. The operator is, of course, obliged to separate the information in applications into confidential and non-confidential.

8.1.8 EMS

EMAS statements are often not specific enough for the regulator. EMAS and ISO verifiers, certifiers and auditors lack waste prevention expertise. The EMS procedure is not totally open to the third party. In different countries there is an inconsistency of approach. Also the interrelationship between voluntary agreements and permit conditions is problematic. The targets of voluntary agreements cannot be included as such in environmental permits.

8.1.9 Monitoring and reporting

Reliable data on waste production is lacking. Internal waste recovery data is usually of poor quality and the data on waste composition, particularly for non-hazardous waste, can also be of poor quality. The wrong waste codes are often used.

At present, the EU EPER does not include waste reporting.

8.1.10 Enforcement

The environmental legislation has changed too often over recent years. Inspection guidelines are needed for the site inspection of wastes. Inspections usually deal with the more immediate aspects of waste management, such as storage, handling and separation.
8.2 Good practice

The seminar identified several suggestions to solve the key difficulties.

8.2.1 The definitions

The seminar suggested that specific EU-wide guidelines for the definitions of waste, waste prevention, waste handling, waste recovery and waste disposal should be prepared, having regard to, inter alia, the judgements of the European Court of Justice.

Additionally, it would be good practice to create practical guidelines for these definitions. The EWC is good practice and should be used, but there is still a need for more practical guidelines.

8.2.2 Implementation of the directives and the national laws

Annexes IIA and IIB of the Waste Framework Directive need to be revised because they are not easy to implement in practice and they do not reflect treatment activities as they should be reflected, for example, organising pre-treatment operations.

More focus should be put on practical implementation of the directives. The codes for disposal and recovery activities require harmonisation in the Waste Framework Directive and TFS Regulation.

8.2.3 Application forms

Application documents should be in electronic format and compiling of data on resource consumption and waste should also be done electronically.

8.2.4 Permit consideration

It is good practice to require materials accounting for process lines. Cross-media questions should be taken into account. The operator should be encouraged to either consider product impact, for example, Life Cycle Assessment (LCA), or the Producer Responsibility (PR) mechanism. These issues may be better dealt with by different instruments in IPPC permits. The site-specific aspects of the permits do not support LCA and PR activities. The permit decisions should be available electronically. A comparison and evaluation of permits for the same type of industry should be done throughout a country.

8.2.5 Permit conditions

Some good examples of permit conditions are listed below:

a) Minimisation conditions
   • Limitation of HCl production as a by-product and commitment to set up a recovery scheme for inevitably produced HCl (DE).
   • Use of certain chemical substances is prohibited, owing to a significantly higher potential risk (AT).
- One proposal from the Finnish project on waste prevention (see Annex III) was as follows: "The quantity of metal scrap arising in the production shall be reduced in such a way that in year x the respected amount of waste is 5% less than in year y".

b) Measures to minimise the waste amount
- The operator shall at the latest by year x submit to the competent authority a proposal concerning measures to minimise the total amount of wastes arising in the production (FI).
- The operator shall in connection with the annual report deliver to the competent authority an account of the implemented measures to reduce the amount and hazardousness of waste during the past year (FI).

c) Substituting raw material
- The operator can be required to use less dangerous chemical substances (causing the same effects) in an industrial process in order to reduce the amount of hazardous waste (AT).
- The operator shall consider suitable alternative materials to reduce environmental impact (UK).

d) Records of waste
- The operator shall maintain and implement a system which ensures that a record is made of the quantity, composition, origin and delivery date of any waste that is received for disposal or recovery at the installation (UK).

e) Audits and assessments
- The operator shall carry out periodic waste minimisation audits and water use efficiency audits (UK).
- The operator shall carry out a systematic assessment and review of the management of all wastes generated... the purpose of the assessment shall be to identify methods of avoiding or reducing the impact on the environment (UK).

f) Plans and programmes
- The operator shall make a plan for the management of waste (SE);
- The waste management plan shall be approved by the inspection authority (SE).

g) Recycling or recovery
- If possible, in the procurement of chemicals and raw material, returnable or recyclable containers or packages shall be used and small packaging sizes and single use packages shall be avoided (FI).
- Waste produced at the installation shall be recycled or recovered unless technically and/or economically impossible (UK).

h) Storage handling and disposal
- Used oils should be collected properly and given to a licensed collector for further treatment (CY).
- The operator shall identify the best practicable environmental options for waste disposal (UK).
- The operator shall design, maintain and operate all facilities for the storage and handling of waste on-site such that there are no releases to water or land and that emissions to air are minimised (UK).
- Sludge shall, in the first place, be incinerated or, in case of contamination, be composted (SE).
It was considered that permit conditions relating to using waste as a raw material should only be used when required to encourage the reuse or recovery of waste materials.

8.2.6 Use of BREFs

The seminar found that the BREFs need to be revised in a way to take waste-related issues better into account: Annex IV to the IPPC Directive (particularly bullets 1–3) should be taken into account. Also the cross-media BREF should better consider waste-related issues. The specific waste BREF should include guidance for permit writers on industrial waste handling and storage.

Case-by-case benchmarking, where resource use versus production, could be developed into a waste index. Sectoral benchmarking should also be developed in the EU for key resources use and waste streams.

8.2.7 EMS

EMS brings more knowledge of material flows and keeps clean production on the agenda of the management. EMS allows targets to evolve and avoids the difficulty of specifying targets in the permits.

EMAS is better than the ISO 14001 standard because of the reporting requirements. EMAS is a good tool for the operator to have for managing waste questions like setting targets and finding solutions to problems.

The combination of EMAS with OHS (Occupational Health System) would be good practice.

Joint inspection is good practice (EMAS + ISO + environmental inspectors). The audit report could also be available on-site for environmental inspectors and the summary of the audit findings could be submitted as a part of the annual environmental report.

8.2.8 Monitoring and reporting

The monitoring system should be integrated, with emissions to air, discharges into water, noise and wastes all considered at the same time. Self-monitoring by operators is good practice, but should be controlled when necessary. Reliable bookkeeping is the basis of annual reports and there should be a possibility to check records. There could be some special minimum criteria for inspection of waste. To improve monitoring, criteria such as the amount of waste per production unit could be used, along with a comparison between companies in the same industrial branch.

8.2.9 Enforcement

An annual plan of inspections should be made according to the minimum criteria of inspections. In determining the frequency of inspections, the type, size and the risk of the installation should be taken into account. In addition, the previous performance of the plant should be considered.

It is good practice to do an inspection immediate after an accident has occurred. Inspections can also be planned so that specific details all over the country are inspected at the same time; this would allow for a good exchange of experience.
8.2.10 Training

It was also pointed out that it is good practice to provide general training for environmental authorities and to raise their level of knowledge. Minimum criteria for waste inspections should be developed and authorities should be trained in these criteria.

8.3 Proposals for further work

During the discussions in the seminar the following tasks were identified for further work in the European Commission.

8.3.1 Legal issues

- Specific EU-wide guidelines for the definitions of waste, waste prevention, waste recovery, having regard to, inter alia, judgements of the European Court of Justice;
- Annexes IIA and IIB of the Waste Framework Directive need to be revised;
- Harmonisation of disposal and recovery activity codes in the WFD and TFS registers;
- EU legislation is changing too often, there is no time to start with inspections under the previous legislation.

8.3.2 Permit conditions and BAT

- Sector-wise benchmarking in the EU for use of key resources and waste streams;
- Explore with DG Enterprise a European-wide waste exchange to encourage waste use as raw material;
- Better consideration of waste-related issues in all the BREFs (sector, monitoring and cross-media BREFs);
- Guidance for permit writers on industrial waste storage and handling.

8.3.3 Guidance

- Sector-specific guidance for reporting waste statistics would be good;
- Site inspection guidance specific to waste prevention is not common or well developed (could also be IMPEL activity).

8.3.4 Monitoring

- Harmonising the reporting system within the EU for all the waste directives;
- Query legal basis for EUP decision on monitoring plans;
- EU EPER does not include waste reporting, but subject to review under PRTR; recommend this includes waste and electronic reporting;
- Annual report on waste production, disposal and recovery (EU level electronic data management if possible).
8.3.5 EMS

- Encourage exchange of information between EMAS or ISO 14001 and OHS – Occupational Health System (ISO 18000).

8.3.6 Development of administration

- Countries could have a dedicated national waste prevention team;
- EU wide advisory body could be founded, which members could give general waste prevention advice to permit authorities and operators.

The following tasks were recommended for further work in IMPEL:

8.3.7 Study on the practical implementation of the waste directives and the IPPC Directive for one industrial sector

- Has the BREF been used?
- Are the permit conditions site-specific?
- Is there uniformity inside this sector?

8.3.8 Study on impacts of the Aarhus Convention

- Has the convention harmonised the access to information?
- Is transparency the general rule?

8.3.9 Further study on permitting for one sector

- Has materials accounting (tonnes of waste per production unit) been used?
- Are there conditions for weighing the waste when it leaves the site?
- Has a detailed operator’s waste prevention and management plan been used?
- Are there specific waste conditions?
- Are there waste segregation conditions?

8.3.10 Study on monitoring

- Is there an integrated monitoring system?
- Could improvement criteria, such as the amount of waste per production unit, be used?
- Is there implementation of waste reduction indices?
- Is the book-keeping reliable?

8.3.11 Guidance on waste inspection

- Minimum criteria for waste inspection
- Team approach to inspections
- Site inspection guidance specific to waste prevention.
References and literature


## Acronyms and abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT</td>
<td>Austria</td>
</tr>
<tr>
<td>BAT</td>
<td>Best Available Techniques</td>
</tr>
<tr>
<td>BATNEEC</td>
<td>Best Available Technique Not Entailing Excessive Costs</td>
</tr>
<tr>
<td>BE</td>
<td>Belgium</td>
</tr>
<tr>
<td>B.I.M.</td>
<td>Brussels Institute for Management of the Environment</td>
</tr>
<tr>
<td>CY</td>
<td>Cyprus</td>
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<tr>
<td>CZ</td>
<td>The Czech Republic</td>
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<tr>
<td>DE</td>
<td>Germany</td>
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<tr>
<td>ECJ</td>
<td>European Court of Justice</td>
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<td>EE</td>
<td>Estonia</td>
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<tr>
<td>EIA</td>
<td>Environmental Impact Assessment</td>
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<td>ELV</td>
<td>Emission Limit Value</td>
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<tr>
<td>EMAS</td>
<td>Eco-Management and Audit Scheme</td>
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<tr>
<td>EMS</td>
<td>Environmental Management System</td>
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<tr>
<td>EPA</td>
<td>Environmental Protection Agency</td>
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<tr>
<td>EPER</td>
<td>European Pollutant Emission Register</td>
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<tr>
<td>EQO</td>
<td>Environmental Quality Objective</td>
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<tr>
<td>EQS</td>
<td>Environmental Quality Standard</td>
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<tr>
<td>ES</td>
<td>Spain</td>
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<tr>
<td>EWC</td>
<td>European Waste Catalogue</td>
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<td>FI</td>
<td>Finland</td>
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<td>GR</td>
<td>Greece</td>
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<tr>
<td>HELCOM</td>
<td>Helsinki Commission</td>
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<td>HR</td>
<td>Croatia</td>
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<tr>
<td>IE</td>
<td>Ireland</td>
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<tr>
<td>IPPC</td>
<td>Integrated Pollution Prevention and Control (Directive 96/61/EC)</td>
</tr>
<tr>
<td>ISO 14001</td>
<td>International Organisation for Standardization – environmental management standard</td>
</tr>
<tr>
<td>IT</td>
<td>Italy</td>
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<tr>
<td>LCA</td>
<td>Life Cycle Assessment</td>
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<tr>
<td>NGO</td>
<td>Non-governmental Organisation</td>
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<tr>
<td>OHS</td>
<td>Occupational Health System</td>
</tr>
<tr>
<td>OSPAR</td>
<td>Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention, OSPAR Commission)</td>
</tr>
<tr>
<td>PR</td>
<td>Producer Responsibility</td>
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<tr>
<td>PRTR</td>
<td>Pollutant Release and Transfer Register</td>
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<td>SE</td>
<td>Sweden</td>
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<tr>
<td>SK</td>
<td>Slovakia</td>
</tr>
<tr>
<td>TFS</td>
<td>Trans-frontier Shipment of Waste</td>
</tr>
<tr>
<td>UK</td>
<td>The United Kingdom</td>
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</tbody>
</table>
Annex I. Compilation of the answers to the questionnaire.

Return of the completed questionnaire

<table>
<thead>
<tr>
<th>Country</th>
<th>Responsible persons</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Franz Christian Waldner</td>
<td>Federal Ministry of Agriculture, Forestry, Environment and Water Management</td>
</tr>
<tr>
<td>Belgium</td>
<td>Inge Van Engeland</td>
<td>Brussels Institute for Management of the Environment (BIM)</td>
</tr>
<tr>
<td>Croatia</td>
<td>Anita Pokrovac Patekar</td>
<td>Ministry of environmental protection, physical planning and construction</td>
</tr>
<tr>
<td>Cyprus</td>
<td>Costas Hadjipanayiotou</td>
<td>Environment Service</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Renata Novakova</td>
<td>The Czech Environmental Inspectorate</td>
</tr>
<tr>
<td>Estonia</td>
<td>Toomas Liidja</td>
<td>Estonian Environmental Inspectorate</td>
</tr>
<tr>
<td>Finland</td>
<td>Hannele Kärkinen</td>
<td>Uusimaa Regional Environment Centre</td>
</tr>
<tr>
<td>Germany</td>
<td>Peter Dihlmann and Ulrich Maurer</td>
<td>Ministry for the Environment and Transport of Baden-Württemberg</td>
</tr>
<tr>
<td>Greece</td>
<td>Katerina Iakovidoy</td>
<td>Ministry for the Environment Physical Planning and Public Works</td>
</tr>
<tr>
<td>Ireland</td>
<td>Jonathan Derham</td>
<td>Environmental Protection Agency</td>
</tr>
<tr>
<td>Italy</td>
<td>Rosanna Laraia</td>
<td>Agency for the Protection of the Environment and for Technical Services (APAT)</td>
</tr>
<tr>
<td>Slovakia</td>
<td>Jarmila Durdovicova</td>
<td>Slovak Inspectorate of the Environment</td>
</tr>
<tr>
<td>Spain</td>
<td>Chiqui Barrecheguren</td>
<td>Environmental Inspection Service. Conselleria de Medio Ambiente, Xunta de Galicia</td>
</tr>
<tr>
<td>Sweden</td>
<td>Eva Bivall</td>
<td>Swedish Environmental Protection Agency</td>
</tr>
<tr>
<td>The United Kingdom</td>
<td>Jon Foreman</td>
<td>Environment Agency for England and Wales</td>
</tr>
</tbody>
</table>

1 Please note, that data given in this compilation relate only to the Brussels Capital Region. Belgium consists of three regions, each with its own specific legislation.

2 Coordinating for the UK, and acting as a point of contact on behalf of the Scottish Environment Protection Agency and Northern Ireland’s Environment and Heritage Service.

I Legal background

1.1 Implementation of the waste and IPPC directives

1.1.1 Please, give the name and the content of the provision in your legislation corresponding to Article 3 of the Waste Framework Directive (75/442/EEC)

<table>
<thead>
<tr>
<th>TABLE I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
</tr>
<tr>
<td>Belgium</td>
</tr>
<tr>
<td>OAF (decree concerning the prevention and management of waste substances, dated 7 March 1991) Section 2: Preventing the creation of waste substances. Revaluation of waste substances. Article 4 § 1: The Executive is authorised to take appropriate measures to promote: 1. firstly the prevention or reduction of the production and hazardousness of waste substances, namely encouraging: the development of environmentally friendly technologies with which more economical use is made of the natural resources; the technical development and launching on the market of products that have been designed in such a way that manufacture, use or removal of them does contribute to an increase in the amount or hazardousness of waste substances and to a greater threat of pollution or does so as little as possible; the development of adapted technologies with an eye to the removal of hazardous elements of the waste substances; 2. the useful application of waste substances by means of recycling, reuse, re-application or any other action aimed at obtaining secondary raw materials, or the use of waste substances as a source of a source of energy.</td>
</tr>
<tr>
<td>Country</td>
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<td>--------------</td>
</tr>
</tbody>
</table>
| Croatia      | Article 5: Basic goals of waste management  
Article 6: Waste shall be handled and managed in such a manner as to avoid…  
Article 7: In the section dealing with waste management issues, the environmental protection strategy prescribed  
Article 8: The waste management measures are defined by Environmental Protection Programmes, passed by the County Assembly and the Greater Zagreb Assembly, respectively, and by town and municipal councils.  
Article 12: An industrial waste generator shall in the prescribed manner treat and store industrial waste generated by their operations.  
Article 15: Waste the valuable substances of which can be recovered shall be separately collected and stored…  
Article 16: Packaging waste shall be separately collected and labelled…  
Article 26: Hazardous waste shall be collected separately.  
Article 27: A hazardous waste generator shall provide for hazardous waste storage… |
The content is the same as the Directive. |
| Czech Republic | Act No.185/2001 Coll. On waste; Head 1, Part Three: Obligations of waste treatment § 10 — Prevent waste production; § 11 — Preferential utilization of waste (obligations mentioned in this law are qualify by exiting technical and economical prerequisites) |
| Estonia      | Waste Act:  
§ 5. General requirements for prevention and reduction of waste generation  
(1) In any activity, all appropriate measures and care shall be taken to prevent waste generation, to reduce the quantity of generated waste and to prevent any excessive hazard to health and the environment caused by waste.  
(2) In order to achieve the objectives specified in subsection (1) of this section, measures shall be taken upon every activity, as far as possible, to:  
1) implement technologies which enable the economical use of natural resources and raw materials, including technologies where waste is recovered to the highest possible extent;  
2) manufacture and import, above all, of durable and reusable products which after their discarding result in waste which is recoverable to the highest possible extent.  
§ 7. Waste management plans  
(3) In the preparation of waste management plans, the following general requirements for waste handling shall be taken into consideration:  
1) the best available technology shall be used in waste handling unless this involves excessive costs;  
2) waste shall be recovered if it is technologically possible and does not involve any excessive costs compared with other manners of waste handling;  
3) the use of waste recovered as raw material or any other material shall be preferred to its use as a source of energy;  
4) waste shall be recovered or disposed of at a technologically suitable waste management facility appropriate from the standpoint of environmental protection which is located as close as possible to the site where waste is generated. |
| Finland      | Waste Act, Chapter 2 Prevention of waste and reduction of its Quantity and Harmfulness  
As far as possible care shall be taken in all activities to minimize generation of waste and to ensure that waste does not significantly hamper or complicate the organization of waste management, or result in hazard or harm to health or the environment. Specifically:  
1) the producer shall use raw material sparingly in production and, substitute the use of raw material with waste to the extent possible…  
Waste Act, Chapter 3 Organization of Waste Management  
Waste management shall be organized as follows:  
1) the waste holder shall organize waste management.  
2) waste shall be recovered if this is technically feasible and does not entail excessive additional costs compared with some other form of waste management;  
3) the first priority shall be given to the recovery of the material contained in waste, and the second priority to the energy contained in waste;  
4) waste or waste management shall not cause hazard or harm to health or the environment:  
5) waste management shall employ the best economically available technology and the best possible practice of combating harm to health and the environment… |
1.1.2 Please, give the name and the content of the provision in your legislation corresponding to Article 3 (a) of the IPPC Directive (96/61/EC).

<table>
<thead>
<tr>
<th>Country</th>
<th>Provision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Trade and Industry Act 1994, Fed. Law Gaz. I No. 88/2000 (section 77a (1) no.1); Mining Code, Fed. Law Gaz. I No. 38/1999 and 21/2002 (section 121 (1) no.1);</td>
</tr>
<tr>
<td>Belgium</td>
<td>O.P.E. (decree concerning environmental permits dated 5 June 1997) Article 55 elements to be taken into account when taking the decision. In addition to the information given in the application or the appeal and without prejudice to any other information that could be useful, when taking any decision the following elements must be taken into account: 1. the best available technologies to prevent, reduce or solve the dangers, nuisance or discomforts as a result of the installation, as well as the concrete possible uses of those technologies.</td>
</tr>
</tbody>
</table>
### Croatia

Law on environmental protection (Official Gazette 82/94, 128/99): Article 11

Article 13: Efforts should be made to replace any development that might bear adverse impacts on the environment by another one representing a considerably lower risk or threat, even when the expenses of such a development surpass values that need to be protected; while using products, machinery and equipment and applying production technologies, environmental pollution should be limited at the source of its generation; substances that can be reused or are biodegradable should have priority in use even if it increases expenses, providing that the expenses are proportional to the values that need to be protected; the use of chemicals and other substances that become harmless by decomposition shall be given precedence over other substances if there are no environmental risks or threats involved.

Article 15, Article 18, Article 23, Article 24, Article 50, Article 51

Law on waste (Official Gazette 34/95):

Article 5: Basic goals of waste management are: waste avoidance and minimisation, and minimisation of hazardous properties of waste the generation of which cannot be prevented; prevention of uncontrolled waste management; recovery of valuable properties of waste for material and energy purposes, and its treatment prior to disposal; waste disposal into landfills; remediation of waste-contaminated areas.

Article 6: Waste shall be handled and managed in such a manner as to avoid

Article 8: The waste management measures are defined by Environmental Protection Programmes, passed by the County Assembly and the Greater Zagreb Assembly, respectively, and by town and municipal councils.

Article 15: Waste the valuable substances of which can be recovered shall be separately collected and store...

Law on air quality protection (Official Gazette 48/95):

Article 7, Article 30, Article 31

### Cyprus

Permit Conditions, Article 6(1) (a), Integrated Pollution Prevention and Control Law (56(I)/2003). The content is the same as the Directive.

### Czech Republic

Act No.76/2002 Coll. On integrated prevention; § 14 - The Manner of Laying Down Binding Conditions of Operation

### Estonia

IPPC Act:

§ 4. Best available techniques

1) Best available techniques shall comply with the most effective and advanced stage in the development of activities and their methods of operation. Best available techniques shall provide in principle the basis for emission limit values designed to prevent and, where that is not possible, to reduce emissions and the impact on the environment as a whole.

2) Within the meaning of “best available techniques”:

1) “techniques” includes both the technology used and the way in which the installation is designed, built, maintained, operated, terminated and closed;

2) “available techniques” means up-to-date techniques (whether or not used or produced in Estonia) reasonably accessible to the operator and the implementation of which is economically and technically viable, taking into consideration the costs and advantages, and which ensures the best compliance with the environmental requirements;

3) “best” means most effective in achieving a high general level of protection of the environment as a whole.

### Finland

Environmental Protection Act § 42 preconditions for granting a permit

A party engaged in the recovery or disposal of waste must also post collateral that is sufficient considering the extent and nature of the activity and the regulations issued regarding the activity, or propose some other arrangement to guarantee appropriate waste management. Parties other than those engaged in landfill activities or recovery or disposal of hazardous waste may be exempted from the collateral or corresponding arrangement if they are sufficiently solvent and otherwise able to provide appropriate waste management, or if the waste recovery or disposal activity is of a minor scale. When needed, more detailed provisions concerning the collateral or other corresponding arrangement required of a party engaged in landfill activities are laid down by decree. In addition, parties engaged in the recovery or disposal of waste shall possess expertise that is sufficient considering the type and extent of the activities.

§ 45 Waste and waste management regulations

In addition, necessary regulations on waste and waste management concerning the observation of the Waste Act and provisions issued under it, and on posting the collateral and other arrangements referred to in section 42, paragraph 3, shall be issued in the permit. This Act applies to the enforcement of the regulations. A permit for institutional and commercial recovery and disposal of waste may be limited for the recovery and disposal of a particular kind of waste. The recovery of waste from a particular area may be given precedence in the permit.
<table>
<thead>
<tr>
<th>Country</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>The following regulations are corresponding to Art. 3 (a) of the IPPC Directive (96/61/EC): National Law 3010/2002 sets the framework for</td>
</tr>
<tr>
<td></td>
<td>environmental protection. The core obligations for operators are, with a view to protect human health and the environment, to possess necessary knowledge, to undertake all necessary precautionary and protective measures, to apply best possible techniques (for professional activities), to choose a suitable location from an environmental impact point of view, to economize the use of raw materials and energy and to reuse and recycle materials and energy where possible, to give preference to renewable energy sources and, where possible, to substitute chemicals and biotechnical organisms that may cause risks to human health or the environment. According to chapter 2, section 1, the applicant shall show that these obligations will be complied with. According to chapter 9, section 8 of the Environmental Code, and the Ordinance concerning Environmentally Hazardous Activities and Protection of Public Health, applications for permits for environmentally hazardous activities shall be considered by environmental courts or, for activities considered less environmentally hazardous, by county administrative boards. Chapter 22 EC contains rules on the contents of applications for permits and the permits issued by environmental courts. According to chapter 19, section 5, the relevant sections in chapter 22 shall be applied also by the county administrative boards. Chapter 22, section 1 states that an application shall be made in writing. It shall contain, inter alia, an environmental impact statement pursuant to chapter 6 EC and information about any consultations that have taken place; any information that is necessary for an assessment of compliance with the general rules of consideration laid down in chapter 2; proposals for protective measures or other precautions that may be necessary in order to prevent or remedy the adverse effects of the activity; proposals for control of the activity; a security report in those cases where it is required according to the Swedish Seveso-legislation, and a non-technical description of the information in the application. Chapter 22, section 25, 25(a) and 25(b) contains provisions on the contents of a judgment granting a permit for an activity. The court may only issue a permit if the applicant shows that the obligations in chapter 2 EC are complied with. Furthermore, the provisions of chapter 22, sections 25–25(b), in conjunction with chapter 16, section 2 EC, prescribes that the court or county administrative board shall attach conditions to the permit, based on the obligations in chapter 2, sections 2–7, the overall aims of the Environmental Code in chapter 1, section 1 and the rules on land management and natural resources in chapters 3 and 4 EC.</td>
</tr>
<tr>
<td></td>
<td>The Pollution Prevention and Control (Scotland) Regulations 2000 and the Pollution Prevention and Control (Northern Ireland) Regulations 2003 contain provisions identical to these.</td>
</tr>
<tr>
<td></td>
<td>Act on the Prevention of Harmful Effects on the Environment Caused by Air Pollution, Noise, Vibration and Similar Phenomena — Federal Immission Control Act of 14th May 1990; last amendment of 9th September 2001 Article 3 paragraph 6: Definition of the „best available technology” in combination with the Appendix to Art. 3 para. 6: Criteria for Determining the Best Available Technology. Article 5 Federal Immission Control Act: Obligations of Operators of Installations Subject to Licensing in combination with Article 4 Licensing and Article 52 Supervision Article 5 describes the obligations of operators of installations subject to licensing. Installations subject to licensing shall be established and operated in such a way that in order to ensure a high level of protection for the environment as a whole… precaution is taken to prevent harmful effects on the environment and other hazards, significant disadvantages and significant nuisances, in particular by such measures as are appropriate according to best available technology.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Environmental Protection Agency Acts 1992 &amp; 2003 — Section 5 &amp; Section 83(5)(vi)</td>
</tr>
<tr>
<td>Italy</td>
<td>Dlgs. 4th August 1999, n.372, art.3, comma 1, lett.a</td>
</tr>
<tr>
<td>Slovakia</td>
<td>§ 5 Act No. 245/2003 Coll. on IPPC</td>
</tr>
<tr>
<td>Spain</td>
<td>Ley 10/1998, de 21 de abril, de Residuos (Waste) and Ley 16/2002, de 1 de julio, de prevención y control integrados de la contaminación (IPPC)</td>
</tr>
<tr>
<td>Sweden</td>
<td>Chapter 2 of the Environmental Code contains general rules of consideration. The core obligations for operators are, with a view to protect human health and the environment, to possess necessary knowledge, to undertake all necessary precautionary and protective measures, to apply best possible techniques (for professional activities), to choose a suitable location from an environmental impact point of view, to economize the use of raw materials and energy and to reuse and recycle materials and energy where possible, to give preference to renewable energy sources and, where possible, to substitute chemicals and biotechnical organisms that may cause risks to human health or the environment. According to chapter 2, section 1, the applicant shall show that these obligations will be complied with. According to chapter 9, section 8 of the Environmental Code, and the Ordinance concerning Environmentally Hazardous Activities and Protection of Public Health, applications for permits for environmentally hazardous activities shall be considered by environmental courts or, for activities considered less environmentally hazardous, by county administrative boards. Chapter 22 EC contains rules on the contents of applications for permits and the permits issued by environmental courts. According to chapter 19, section 5, the relevant sections in chapter 22 shall be applied also by the county administrative boards. Chapter 22, section 1 states that an application shall be made in writing. It shall contain, inter alia, an environmental impact statement pursuant to chapter 6 EC and information about any consultations that have taken place; any information that is necessary for an assessment of compliance with the general rules of consideration laid down in chapter 2; proposals for protective measures or other precautions that may be necessary in order to prevent or remedy the adverse effects of the activity; proposals for control of the activity; a security report in those cases where it is required according to the Swedish Seveso-legislation, and a non-technical description of the information in the application. Chapter 22, section 25, 25(a) and 25(b) contains provisions on the contents of a judgment granting a permit for an activity. The court may only issue a permit if the applicant shows that the obligations in chapter 2 EC are complied with. Furthermore, the provisions of chapter 22, sections 25–25(b), in conjunction with chapter 16, section 2 EC, prescribes that the court or county administrative board shall attach conditions to the permit, based on the obligations in chapter 2, sections 2–7, the overall aims of the Environmental Code in chapter 1, section 1 and the rules on land management and natural resources in chapters 3 and 4 EC.</td>
</tr>
</tbody>
</table>
1.1.3 Please, give the name and the content of the provision in your legislation corresponding to Article 3 (c) of the IPPC Directive.

### TABLE 3

<table>
<thead>
<tr>
<th>Country</th>
<th>Legislation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Waste Management Act 2002, Fed. Law Gaz. I No.102/2002 (section 10);</td>
</tr>
<tr>
<td></td>
<td>No. 21/2002 (section 121 (1) no.1).</td>
</tr>
<tr>
<td>Belgium</td>
<td>See replay 1.1.1 article 4 of section 2 of the OAF + Article 7 OAF</td>
</tr>
<tr>
<td></td>
<td>§1 The waste substances plan describes: the type and amount of waste</td>
</tr>
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<td></td>
<td>substances produced every year, as well as the presumed evolution; the</td>
</tr>
<tr>
<td></td>
<td>situation with regard to the prevention and management of waste substances,</td>
</tr>
<tr>
<td></td>
<td>as well as the presumed evolution. The Brussels-Capital Region has a</td>
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<td></td>
<td>waste substances plan, of which one of the main lines is the prevention of</td>
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<tr>
<td></td>
<td>waste at the source and reuse, before processing with an eye to re-use,</td>
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<tr>
<td></td>
<td>recycling and other forms of valorisation, and in the end environmentally</td>
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<tr>
<td></td>
<td>sound removal.</td>
</tr>
<tr>
<td>Croatia</td>
<td>Law on waste (Official Gazette 34/95):</td>
</tr>
<tr>
<td></td>
<td>Article 5: Basic goals of waste management are: Waste avoidance and</td>
</tr>
<tr>
<td></td>
<td>minimisation, and minimisation of hazardous properties of waste the</td>
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<tr>
<td></td>
<td>generation of which cannot be prevented; prevention of uncontrolled waste</td>
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<tr>
<td></td>
<td>management; recovery of valuable properties of waste for material and</td>
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<td></td>
<td>energy purposes, and its treatment prior to disposal; waste disposal into</td>
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<td></td>
<td>landfill; remediation of waste-contaminated areas.</td>
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<tr>
<td></td>
<td>Article 6: Waste shall be handled and managed in such a manner as to avoid...</td>
</tr>
<tr>
<td></td>
<td>Article 7: In the section dealing with waste management issues, the</td>
</tr>
<tr>
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<td>environmental protection strategy prescribed by separate law includes, in</td>
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<td>particular, the following...</td>
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<tr>
<td></td>
<td>Article 8: The waste management measures are defined by Environmental</td>
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<tr>
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<td>Protection Programmes, passed by the County Assembly and the Greater</td>
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<tr>
<td></td>
<td>Zagreb Assembly, respectively, and by town and municipal councils.</td>
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<tr>
<td>Cyprus</td>
<td>Permit Conditions, Article 6(1) (c), Integrated Pollution Prevention and</td>
</tr>
<tr>
<td></td>
<td>Control Law (56(I)/2003). The content is the same as the Directive.</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Act No.185/2001 Coll. On head; head, Part Three: Obligations of waste</td>
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<tr>
<td></td>
<td>treatment, § 10 — Prevent waste production; § 11 — Preferential utilization</td>
</tr>
<tr>
<td></td>
<td>of waste (obligations mentioned in this law are qualify by exiting technical</td>
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<tr>
<td></td>
<td>and economical prerequisites); § 12 — General regulations</td>
</tr>
<tr>
<td>Estonia</td>
<td>Waste Act: § 7</td>
</tr>
<tr>
<td></td>
<td>(3) In the preparation of waste management plans, the following general</td>
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<td>requirements for waste handling shall be taken into consideration: 1) the</td>
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<td>best available technology shall be used in waste handling unless this</td>
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<td>involves excessive costs; 2) waste shall be recovered if it is</td>
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<td></td>
<td>technologically possible and does not involve any excessive costs compared</td>
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<td>with other manners of waste handling; 3) the use of waste recovered as</td>
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<td></td>
<td>raw material or any other material shall be preferred to its use as a</td>
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<td>source of energy; 4) waste shall be recovered or disposed of at a</td>
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<td>technologically suitable waste management facility appropriate from the</td>
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<td>standpoint of environmental protection which is located as close as possible</td>
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<td>to the site where waste is generated.</td>
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<tr>
<td>Finland</td>
<td>Environmental Protection Act Chapter 7</td>
</tr>
<tr>
<td></td>
<td>§ 43 Permit regulations for the purpose of preventing pollution</td>
</tr>
<tr>
<td></td>
<td>Permits shall contain necessary regulations on: emissions, their prevention</td>
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<tr>
<td></td>
<td>and other limitation and the location of the site of emission; wastes</td>
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<td>and reduction of their generation and harmfulness;</td>
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<tr>
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<td>Waste Act Chapter 3 § 4</td>
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<td>4) waste or waste management shall not cause hazard or harm to health or</td>
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<td></td>
<td>the environment; 5) waste management shall employ the best economically</td>
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<tr>
<td></td>
<td>available technology and the best possible practice of combating harm to</td>
</tr>
<tr>
<td></td>
<td>health and the environment...</td>
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<tr>
<td>Germany</td>
<td>Federal Immission Control Act, Article 5, par. 1 nr. 3 in combination with</td>
</tr>
<tr>
<td></td>
<td>Article 4 Licensing and Article 52 Supervision.</td>
</tr>
<tr>
<td></td>
<td>Content: see 1.1.1</td>
</tr>
<tr>
<td></td>
<td>Act for Promoting Closed Cycle Waste Management and Ensuring Environmentally</td>
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<tr>
<td></td>
<td>Compatible Waste Disposal (Kreislaufwirtschafts- und Abfallgesetz — Kkw-/</td>
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<td>AbfG)</td>
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<td></td>
<td>Article 9: The obligations of operators of installations subject to</td>
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<td>licensing pursuant to the Federal Immission Control Act to establish and</td>
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<td></td>
<td>operate such installations in such a manner that waste is avoided,</td>
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<td></td>
<td>recycled and disposed of, shall follow the provisions of the Federal</td>
</tr>
<tr>
<td></td>
<td>Immission Control Act.</td>
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<tr>
<td>Greece</td>
<td>The following regulations are corresponding to Art. 3 (c) of the IPPC</td>
</tr>
<tr>
<td></td>
<td>IPPC Directive implementation Common Ministerial Decision 50910/2727/16-12-</td>
</tr>
<tr>
<td></td>
<td>2003 about “the plans and conditions for waste management and the National</td>
</tr>
</tbody>
</table>
|               | and Regional waste management plan”
1.1.4 Please, give the name and the content of the provision in your legislation corresponding to Article 6 of the IPPC Directive (96/61/EC).

### TABLE 4

<table>
<thead>
<tr>
<th>Country</th>
<th>Provision</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Austria</strong></td>
<td>Trade and Industry Act 1994, Fed. Law Gaz. 194/1994 (section 353 and 356a (1)); Mining Code, Fed. Law Gaz. 1 No. 38/1999 and 21/2002 (section 119 (3) no.5);</td>
</tr>
</tbody>
</table>
| **Belgium**      | OPE : Section I: Provisions that apply to all installations  
                          Article 10: Content of the application  
                          2. Description of the place where the project is planned and of the direct vicinity, above all with the aid of the plans.  
                          Section II : Provisions that apply to class 1A installations  
                          Subsection 3 Environmental impact studies (EISs)  
                          Article 26: Content of the EIS  
                          3. The extensive and accurate description and assessment of the elements on which the project can have an impact within the geographic area as defined in the specifications.  
                          4. The inventory and extensive assessment of the impact of the project and the building site  
                          5. The information provided by the applicant concerning the measures that are planned to avoid, remove or slow down the negative impact of the project and of the building site, as well as the measures that go to avoid serious accidents and limit their consequences.  
                          6. The assessment of the effectiveness of the measures specified in point 5, above all compared to the existing standards.  
                          7. The comparison of the replacement problems that can reasonably qualify including, where applicable, failing in the project, as well as the assessment of their impact.  
                          8. A non-technical summary of the aforementioned elements. The government can further specify and supplement the elements of the first paragraph; it can also determine the way of presenting the environmental impact study .  
                          Section III provisions concerning the class 1B installations  
                          Subsection 1: submission of the application  
                          Article 37: The environmental impact report consists of at least the following elements:  
                          1. the justification of the project, the description of the objectives and the schedule for its execution;  
                          2. the summary of the various planned solutions that have formed the foundation of the choice of project submitted by the applicant, in view of the environment;  
                          3. the description of the elements and the geographic area which lead to the project having consequences, above all with the aid of plans;  
                          4. the inventory of the predictable impact of the project and the building site;  
                          5. the assessment of this impact in comparison with the current situation;  
                          6. the summary of the legislative and regulatory provisions and regulations that apply; |
| **Ireland**      | Environmental Protection Agency Acts 1992 & 2003 — Sections 82, 83, 84, 85 & 86 |
| **Italy**        | Dlgs. 4th August 1999, n.372, art.3, comma 1, lett.c |
| **Slovakia**     | § 19 art. 1 Act No. 223/2001 Coll. On Waste |
| **Spain**        | Ley 10/1998, de 21 de abril, de Residuos (Waste) and Ley 16/2002, de 1 de julio, de prevención y control integrados de la contaminación (IPPC) |
| **Sweden**       | The provisions corresponding to article 3(c) are, above all, sections 1, 2, 25, 25a and 25 b in chapter 22, section 2 in chapter 16 and chapter 2. Worth pointing out is section 5 in chapter 2. These provisions are described under question 1.1.2. Worth mentioning is furthermore chapter 15 containing waste and producer responsibility and ordinance (2001:1063) on waste. |
| **United Kingdom** | Regulation II of the Pollution Prevention and Control (England and Wales) Regulations 2000:  
                          (3) The additional general principles referred to in paragraph (1) in relation to a permit authorising the operation of a Part A installation or a Part A mobile plant are that the installation or mobile plant should be operated in such a way that -  
                          (a) waste production is avoided in accordance with Council Directive 75/442/EEC on waste; and where waste is produced, it is recovered or, where that is technically and economically impossible, it is disposed of while avoiding or reducing any impact on the environment;  
                          The Pollution Prevention and Control (Scotland) Regulations 2000 and the Pollution Prevention and Control (Northern Ireland) Regulations 2003 contain provisions identical to these. |
<table>
<thead>
<tr>
<th>Country</th>
<th>Relevant Legislation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Croatia</td>
<td>Law on waste (Official Gazette 34/95): Article 14, Article 25, Article 37, Article 37</td>
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<td></td>
<td>Law on environmental protection (82/94, 128/99): Article 24, Article 25, Article 28</td>
</tr>
<tr>
<td></td>
<td>Law on air quality protection (48/95): Article 37, Article 38</td>
</tr>
<tr>
<td>Cyprus</td>
<td>Application for Waste Disposal, Article 9(1), Water and Soil Pollution Control Law (106(I)/2002)</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Act No.76/2002 Coll. On integrated prevention; § 4 - Content of the Application</td>
</tr>
<tr>
<td>Estonia</td>
<td>IPPC Act: § 9. Application for permit (1) An application bearing the date and the signature of the applicant shall be submitted to the issuer of permits. An application shall set out the request being made and indicate the requested manner of delivery of the decision to the applicant (by ordinary or registered mail). The following information shall be annexed to an application: (19.06.2002 entered into force 01.08.2002 - RT I 2002, 61, 375)… (3) The following shall be annexed to an application for permit: 1) an environmental memorandum and environmental impact assessment statement, in the cases and pursuant to the procedure provided for in the Environmental Impact Assessment and Environmental Auditing Act (RT I 2000, 54, 348; 2002, 61, 375); 2) in the case of an enterprise liable to be affected by a major accident, information pursuant to clauses 11 (4) 1) and 2) of the Chemicals Act (RT I 1998, 47, 697; 1999, 45, 512; 2002, 53, 336; 61, 375). (4) The standard formats of annexes to a permit and the procedure for completion thereof shall be established by a regulation of the Minister of the Environment. (5) The Minister of the Environment may establish additional requirements to permits in some categories of activities by a regulation.</td>
</tr>
<tr>
<td>Finland</td>
<td>Environmental Protection Act Chapter 6, § 35 Applications shall include a report on the activity, its impact, parties involved and other relevant matters that are needed in the permit consideration as is laid down in more detail by decree. Environmental Protection Decree Chapter 3, § 9 Content of the application. Applications shall include a report on the activity, its impact, parties involved and other relevant matters that are needed in the permit consideration as is laid down in more detail by decree. Chapter 3, § 12 Additional information on waste and waste management In addition to what is provided in sections 9-11 above, if the activities relate to the recovery or disposal of waste the application must also include an account of: 1) the quality and quantity of waste intended for recovery or disposal; 2) the area from which waste is to be taken for recovery or disposal; 3) waste collection and transportation which will be organized by the applicant; 4) waste recovery and disposal and a schematic diagram of the process of recovery and disposal; 5) the type, quality and quantity of waste produced by recovery or disposal and its further recovery or disposal; 6) the applicant’s financial solidity, and where necessary collateral security or other comparable arrangements; 7) waste management expertise available to the applicant.</td>
</tr>
</tbody>
</table>
### Germany

Federal Immission Control Act, Article 10 Licensing Procedure: The operator has to submit a written application. Any drawings, explanations and other supporting documents required for the verification of the prerequisites for licensing have to be added to the application.

Ninth Ordinance for the Implementation of the Federal Immission Control Act (Ordinance concerning the Licensing Procedure — 9. BImSchV)

Article 4 and from 4a to 4e describe the content of the application.

Article 4: Application documents
Article 4a Description of the installation and the operation
Article 4b Description of Preventive Measures
Article 4c Information on Waste Management
Article 4d Data on energy efficiency
Article 4e Additional data for installations which have to undergo an environmental impact assessment pursuant to the Environmental Impact Assessment Act.

### Greece

The following regulations correspond to Art. 6 of the IPPC Directive (96/61/EC), as follows:

- National Law 3010/2002 sets the framework for the IPPC Directive implementation
- Common Ministerial Decision 15393/2332/2002 refers to the industrial sectors that fall under the IPPC Directive
- Common Ministerial Decision 11014/703/F104/2003 describes the permitting procedure for the IPPC installations

### Ireland

- Environmental Protection Agency Acts 1992 & 2003 — Section 83
- Environmental Protection Agency (Licensing) Regulations 1994 (SI 85 of 1994) — Articles 5, 10, 12 & 14

### Italy

Dlgs. 4° August 1999, n.372, art.4, comma 1, 2, 4

### Slovakia

§ 11 Act No. 245/2003 Coll. on IPPC

### Spain

- Ley 10/1998, de 21 de abril, de Residuos (Waste) and Ley 16/2002, de 1 de julio, de prevención y control integrados de la contaminación (IPPC)

### Sweden

As mentioned in question 1.1.2, the same rules concerning the content of the applications apply for applications tried by county administrative boards and environmental courts.

Section 1, chapter 22 EC states that the application shall be made in writing and what it shall contain: The section is not meant to be exclusive on all the details required. The requirements are rather to be looked at in each individual case. The section should be read in its context and in the light of, for example, the general rules of consideration in chapter 2 EC.

Based on this, section 1, chapter 22 EC meets the requirements in article 6 of the IPPC Directive. Furthermore, the court shall order the applicant to submit additional information within a specified time period if it considers the application incomplete. Furthermore, section 6, chapter 22 gives government agencies, county administrative boards and municipalities the opportunity to plead in the case in order to safeguard environmental interests and other public interests. Worth mentioning is also that when an application is handed in to a court, the court circulates the application to certain government agencies and municipalities. This procedure is one more way to ensure that the application is complete.

### United Kingdom

Schedule 4 of each of the UK Regulations cited above. The Schedule is too long to reproduce here, but can be accessed, for the England and Wales Regulations, at www.legislation.hmso.gov.uk/si/si2000/20001973.htm (refer to Part 1 (1) of the schedule).

For the Scottish Regulations see www.scotland-legislation.hmso.gov.uk

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3 The content of the section is described in question 1.1.2.

### 1.1.5 Please, give the name and the content of the provision in your legislation corresponding to Article 9 of the IPPC Directive (96/61/EC).

#### TABLE 5

<table>
<thead>
<tr>
<th>Country</th>
<th>Provision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Trade and Industry Act 1994, Fed. Law Gaz. I No. 88/2000 (sections 77a (3) and 77 (4)); Mining Code, Fed. Law Gaz. I No. 38/1999 and 21/2002 (sections 119 (3) and 121 (3));</td>
</tr>
<tr>
<td>Belgium</td>
<td>OPE Article 55 Elements to be taken into account when taking the decision In addition to the information given in the application or the appeal and without prejudice to any other information that could be useful, when taking any decision the following elements must be taken into account: 1. the best available technologies to prevent, reduce or solve the dangers, nuisance or discomforts as a result of the installation, as well as the concrete possible uses of those technologies.</td>
</tr>
</tbody>
</table>
4. the provisions compulsory by law that apply, including the programmes to reduce pollution and the regulations and objectives of the Regional plan concerning the battle against noise nuisance on the one hand and the Regional plan for the prevention and management of waste substances that are binding for the issuing authority on the other hand.

**Article 56 Special operating conditions**

Without prejudice to the other conditions, the authority that issues the environmental permit can determine the following:

2. the conditions for inspection of the installation and its environment and in general for every periodical inspection;

3. the conditions for the measures that must be taken if an accident or incident occurs that causes damage to the environment and the persons that under article 2 must be protected;

4. the conditions for the roads to be taken to or from the installation by the freight traffic;

5. the conditions for the condition that the location must be in after termination of the operation, and the guarantees that the operator must given on this account. As far as soil pollution is concerned, the environmental permit imposes conditions, but better enforcement will be possible due to the decree concerning soil matters that was approved in June 2004.

**Croatia**

See 1.1.4.

**Cyprus**

a) Scope and Field of Application. Annex I, Article 3(I), Integrated Pollution Prevention and Control Law (56(I)/2003) and (b) Permit Conditions, Article 10(I), Water and Soil Pollution Control Law (106(I)/2002), and (c) Coordination of procedures for integrated pollution prevention, Article 20(I), Water and Soil Pollution Control Law (106(I)/2002). The contents are the same as the Directive.

**Czech Republic**

Act No.76/2002 Coll. On integrated prevention; § 4 – Content of the Application; § 13 (Decision on the Application) -- clause 4) the binding conditions for operation.

**Estonia**

IPPC Act: § 17. Contents and requirements of permit

(2) Considering the nature of the operation and the environmental impact created by the operation, the following shall be determined in a permit:

1) emission limit values or equal parameters or technical measures, without setting the requirement for use of some specific equipment or technology;

2) the extent of use of raw materials, chemicals, energy and water, and the measures which, considering the protection of the environment as a whole, ensure the effective use of such resources and, where technical and economic resources permit, the recovery thereof; 3) the maximum allowed quantities for waste generated, including the maximum allowed quantities for waste released into the environment;

4) the measures for prevention or minimising of noise and vibrations;

5) the measures for protection of surface and ground-water, and soil;

6) the measures for prevention of waste generation;

7) the measures for recovery of waste or if this is not economically or technically viable, the measures to be applied for the release of waste into the environment;

8) the requirements for the period of operation of the installation;

9) the measures for prevention of accidents and for mitigating the consequences thereof;

10) organisation of waste and emission monitoring, including the extent of control exercised by an accredited or recognised independent laboratory;

11) organisation of monitoring of environmental impact;

12) the measures to be applied upon the cleaning or breakdown of production equipment or treatment facilities, upon commencing and termination of operation, and upon termination of operation in a given category of activity;

13) the manner and frequency of submission of information to the issuer of permits, and the extent of submitted information;

14) the measures for reducing long-distance or transboundary pollution to a minimum;

15) the results of annual review of the requirements of the permit.

**Finland**

Environmental Protection Act Chapter 8. § 52

The grounds and justification of the ruling shall be indicated in the permit decision. The decision must respond to separate demands made in opinions and complaints...

Environmental Protection Decree Chapter 4, § 18

Content of the recital section of the permit decision

The recital section of the permit decision shall contain the following information, as applicable:

9) details of discharges and waste caused by the activities;

**Germany**

Federal Immission Control Act, Article 6 (Prerequisites for Licensing) in combination with Article 5 (Obligations of Operators of Installations Subject to Licensing) and Article 7 Regulations Governing the Requirements for Installations Subject to Licensing). A licence shall be granted provided that 1. it is ensured that the obligations arising from Art. 5 hereof and from any regulation issued under Art. 7 hereof will be complied with and
### ANNEX I

2. the establishment and operation of such installation does not conflict with any other provision under public law and labour protection concerns.

Federal Immission Control Act, Article 12: Collateral Licensing Provisions The granting of a license may be made contingent upon specific conditions and obligations to the extent this is necessary to warrant compliance with the conditions.

According to Article 13 (License and Other Official Decisions) the permit shall comprise other official decisions concerning the installation, in particular licences, approvals grants, permits and concessions under public law with the exception of permits and concessions according to Art. 7 and 8 of the Federal Water Act.

This means that the permit under the Federal Immission Control Act does not include permits and concessions according to Art. 7 and 8 of the Federal Water Act.

Ordinance concerning the Licensing Procedure — 9. BImSchV, Article 21: Content of the Permit

The permit has to include the immission limit values, permit conditions and obligations ....

<table>
<thead>
<tr>
<th>Country</th>
<th>Regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ireland</strong></td>
<td>Environmental Protection Agency Acts 1992 &amp; 2003 — Sections 83 &amp; 86</td>
</tr>
<tr>
<td><strong>Italy</strong></td>
<td>DLgs. 4th August 1999, n.372, art.5, The art. 9, comma 2 of the IPPC Directive is not transposed, since the DLgs. 372/99 refers only to the existing plants.</td>
</tr>
<tr>
<td><strong>Slovakia</strong></td>
<td>§ 18 Act No. 245/2003 Coll. on IPPC</td>
</tr>
<tr>
<td><strong>Spain</strong></td>
<td>Ley 16/2002, de 1 de julio, de prevención y control integrados de la contaminación (IPPC)</td>
</tr>
<tr>
<td><strong>Sweden</strong></td>
<td>The requirements in chapter 2 EC, in combination with the requirements on the content of a permit stated in chapter 22, sections 25, 25(a) and 25(b) mean that the requirements in article 9 in the IPPC Directive always are fulfilled. Furthermore, there are binding regulations on for example protection of groundwater, discharges of industrial waste water, treatment of soil water, the design of landfills, incineration of waste, the handling of waste etc.</td>
</tr>
<tr>
<td><strong>United Kingdom</strong></td>
<td>The requirements of Article 9 are contained within regulations 11 and 12 of the England and Wales Regulations, and identically in regulations 8 and 9 of the Scotland Regulations and regulations 11 and 12 of the Northern Ireland Regulations. These regulations are too long to be reproduced here but can be accessed on the Internet as above.</td>
</tr>
</tbody>
</table>

**Comments:**

**Austria:** Between 1999 and 2002 only 11 installations were given a permit under IPPC regulations (+ 25 waste treatment plants not covered by this survey)

**Belgium:** We do not have any installations of the type in point 6.6: namely installations for intensive poultry or pig farming with the aforementioned numbers, as the Brussels-Capital Region is in an almost entirely urban area.


**Estonia:** New Waste Act will be adopted before 01.05.2004.

**Germany:** BMU

**Ireland:** See also EPA Research Program in support of our regulatory and other functions at www.epa.ie/r_d/Research_Reports.htm For example see report “A Strategy for Developing Recycling Markets in Ireland” Also the EPA is required by law to prepare a National Management Plan for Hazardous Waste, see at www.epa.ie/techinfo/default.htm, www.epa.ie/Waste/documents and www.epa.ie/Waste/NWD2001

**Italy:** To be considered for all questionnaire:

At the moment the IPPC permit system in Italy is still developing, the competent authorities are working on different national guidelines, both horizontal and vertical, and the number of released permits is quite inconsistent in order to supply general information. It is important to underline that the IPPC discipline is under implementation.

**Spain:** The two laws are the transposition of the two Directives to the Spanish legislation. The IPPC is very recent and we have not issued any integrated permit yet.
### 1.2 Definition of waste

1.2.1 In addition to the legislation, are there any other sources or guidance provided on the definition of waste?

<table>
<thead>
<tr>
<th>No</th>
<th>Yes, written guidance</th>
<th>Yes, other information</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>x</td>
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<tr>
<td>Belgium</td>
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<td>Croatia</td>
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<td>Cyprus</td>
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<td>Estonia</td>
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</tr>
<tr>
<td>Sweden</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
1.2.2 In the context of IPPC permits, has the definition of waste caused any difficulties?

<table>
<thead>
<tr>
<th>Country</th>
<th>Yes or No</th>
<th>Difficulties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Yes</td>
<td>In concrete cases problems occur with the need to differentiate between waste, by-products and products. This especially applies to incineration plants (e.g., processed plastic waste “fuel” or “waste”).</td>
</tr>
<tr>
<td>Belgium</td>
<td>Yes</td>
<td>It is pretty difficult to determine whether some waste substances are hazardous or non-hazardous. When waste ceases to be waste?</td>
</tr>
<tr>
<td>Croatia</td>
<td>Yes</td>
<td>The definition in the Law of Waste does not clearly distinguished the waste for disposal and the waste which can be used as secondary raw material.</td>
</tr>
<tr>
<td>Cyprus</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Yes</td>
<td>Installations for the disposal or recovery of hazardous waste and for waste oils with a capacity exceeding 10 tonnes per day — see above.</td>
</tr>
<tr>
<td>Estonia</td>
<td>Yes</td>
<td>Defining waste.</td>
</tr>
<tr>
<td>Finland</td>
<td>Yes</td>
<td>Is slag from ironworks or steelworks waste? Is purified gas from facilities for incineration (gasifying) of waste (REF) waste?</td>
</tr>
<tr>
<td>Germany</td>
<td>Yes</td>
<td>Complicated definition of waste, by-products, used solvents.</td>
</tr>
<tr>
<td>Greece</td>
<td>No</td>
<td>The answer is, at the moment, negative because due to the recent implementation of the IPPC Directive in the national legislation there is not enough knowledge on such matters yet.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes</td>
<td>When is a by-product a waste? When is a waste a raw material? Is the processing of waste as a raw material in a manufacturing process a Recovery activity within the meaning of the Waste Framework Directive? What Recovery actions are sufficient to de-classify a material as a waste (i.e., from being a waste to being a secondary raw material)? Is the solvent recovery loop in pharmaceutical making when carried on as an integrated element of the tablet making process, a waste Recovery operation within the meaning of the Waste Framework Directive? Is blood from slaughtering a waste when collected and used for sausage making? Are the skins of animals from slaughtering a waste? They can be as valuable in the leather trade as the meat! Lime from sugar purification is spread on land as a fertiliser. Is it waste? Molasses is a by-product from sugar manufacture. Is it a waste? Is wood-chip from board manufacture a waste? Often sent for use in boilers. Pig manure (slurry) from intensive piggery operations is used as a nutrient on land for crop growing. Is it a waste or a by-product fertiliser? Are precious metal catalysts which are sent for regeneration a waste or a valuable piece of processing equipment?</td>
</tr>
<tr>
<td>Italy</td>
<td>Yes</td>
<td>Yes, particularly regarding the recovery activities.</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>Yes</td>
<td>Because the two laws have different definitions.</td>
</tr>
<tr>
<td>Sweden</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>
ANNEX I

The Finnish Environment 761

United Kingdom  
Yes  
It is the view of the Environment Agency for England and Wales that the difficulty in distinguishing between by products and residues (waste) is the one that most affects IPPC. Both the Palin Granit case and the Avesta Polarit Chrome Oy ECJ provide guidance on what constitutes a by-product and in the Environment Agency’s view this constitutes what might be thought of as being a ‘closed loop’ process (e.g. where offcuts are fed straight back into the original manufacturing process) and does not amount to the offcuts being discarded. However it is common practice to design a manufacturing process so that waste is minimised and a beneficial use is identified for all “co-products” from the process. It is not always desirable to simply distinguish between those primary products that a company sets out to produce and classify the remainder as waste, although this is what the case law of the ECJ appears to be requiring (unless the remaining materials are certain to be reused without further processing as an integral part of the production process). It is not uncommon for the markets for ‘by product’ to be as significant as the markets for the original product. In addition there are cases in the Food and Drink sector where the consideration of a co-product as a waste results in the activity falling below the PPC Threshold. Basically, uncertainty about the interpretation of the definition of waste in any particular situation will inevitably cause uncertainty and therefore difficulty for IPPC to the extent that (i) the activity may thereby become an IPPC-covered waste management activity, and/or (ii) that the status of material produced or used in an industrial activity has a bearing on the IPPC “general principle” regarding waste minimisation.

1.2.3 In which sectors have you had special difficulties in defining waste?

<table>
<thead>
<tr>
<th>TABLE 8</th>
<th>Please, specify in which sectors:</th>
<th>Please, specify what kind of difficulties in each sector:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Incineration, energy production</td>
<td>See 1.2.2</td>
</tr>
<tr>
<td>Belgium</td>
<td>Heavy industry, Chemical industry, Food industry, etc.</td>
<td>Problems with determining whether waste is hazardous or non-hazardous: e.g. packaging, toner waste, electric and electronic waste etc. We need practical definitions for the inspectors and permit agents.</td>
</tr>
<tr>
<td>Croatia</td>
<td>Heavy industry, Chemical industry, Food industry, etc.</td>
<td>The definition of waste is the main problem</td>
</tr>
<tr>
<td>Cyprus</td>
<td>Mining</td>
<td>Difficulties in defining mining wastes (topsoil, dumps). Also in packaging wastes, for fixed materials like carton-aluminium-plastic. The question is which is the proper way to manage them and how can we count their weight.</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>See above</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>Animal farming</td>
<td>Supreme Court decision: manure formed in animal farming is waste as it is by-product</td>
</tr>
<tr>
<td>Finland</td>
<td>Incineration of waste</td>
<td>See 1.2.2</td>
</tr>
<tr>
<td>Germany</td>
<td>Agriculture, incineration plants, chemical industries</td>
<td>See 1.2.2</td>
</tr>
<tr>
<td>Ireland</td>
<td>Food &amp; Drink; Intensive Agriculture; Slaughtering; Wood Industry; Pharmaceutical, etc</td>
<td>Too big of a question given 10 years of interpretation experience under our legislation. Main issues are to do with classification of by-products. Industry generally believes that where a by-product has a high value (they can sell it) and is in demand then it is not a waste. Common issue to all sectors. Similar issues to Avesta Polaris case. When does a clean technology solution in a process line which integrated raw materials savings by, for example, collecting solvent as an integrated element of the process line, become a Waste Recovery Operation under the Waste Framework Directive. Important as it can require a planning Authorisation, a permit review and perhaps an EIS. The other big issues are to do with burning material to raise heat. Where the material has a calorific value equivalent to convention fuels and produces emissions of no worst quality, then is it a waste and is the process a waste recovery operation?</td>
</tr>
<tr>
<td>Italy</td>
<td>Recovery</td>
<td>About the distinction between waste and secondary raw materials.</td>
</tr>
<tr>
<td>Slovakia</td>
<td>None</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
Sweden: Asphalt, refrigerators, freezers and cars.

United Kingdom: The status of spent grains and yeast from brewing and of materials resulting from flour milling.

Comment:
Greece: Please see 1.2.2

1.2.4 Have you encountered difficulties in classifying certain substances or materials as waste?

<table>
<thead>
<tr>
<th>Table 9</th>
<th>Yes or no</th>
<th>Please, specify what kind of difficulties, substances and materials:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Yes</td>
<td>See 1.2.3</td>
</tr>
<tr>
<td>Belgium</td>
<td>Yes</td>
<td>Ground, and problems with classifying of by-products.</td>
</tr>
<tr>
<td>Croatia</td>
<td>Yes</td>
<td>Meat bone powder, coal fly ashes from the power plants.</td>
</tr>
<tr>
<td>Cyprus</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Yes</td>
<td>Sludge of the waste water treatment plant, excavated earth.</td>
</tr>
<tr>
<td>Estonia</td>
<td>Yes</td>
<td>The definition of waste in Estonian Waste Act can be understood differently as there is no exact translation of the word “discard”.</td>
</tr>
<tr>
<td>Finland</td>
<td>Yes</td>
<td>See 1.2.2</td>
</tr>
<tr>
<td>Germany</td>
<td>Yes</td>
<td>See 1.2.2</td>
</tr>
<tr>
<td>Greece</td>
<td>No</td>
<td>The answer is, at the moment, negative because due to the recent implementation of the IPPC directive in the national legislation there is not enough knowledge on such matters yet.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes</td>
<td>Refer questions 1.2.3 and 1.2.4. Catalysts, solvents, fuels, animal by-products, animal manures. In particular the decision on whether something is hazardous or not has historically been very problematic</td>
</tr>
<tr>
<td>Italy</td>
<td>Yes</td>
<td>About the distinction between waste and secondary raw materials.</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>Yes</td>
<td>Waste used as a raw material in other installations or which is recovered or recycling.</td>
</tr>
<tr>
<td>Sweden</td>
<td>Yes</td>
<td>There are difficulties in determining when waste cease to be waste.</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>-</td>
<td>See 1.2.3</td>
</tr>
</tbody>
</table>

Comments:
Austria: To differentiate between “waste”, “product” and “by-product” properly some guidance on EU level should be given (by EC).
Greece: As it was already mentioned, the fact that the IPPC Directive is recently transposed in the Greek legislation has resulted in a limited knowledge of various effects in several issues.
Ireland: The EU court rulings on the definition of waste and associated interpretations have been of mixed use. Some very clear, some confusing and others being controversial and difficult to understand. There is a huge need for legal clarity on the definition of waste. E.g. Avesta Polaris & Granit Oy cases.
Spain: In the European waste list we have problems with the kind of waste which can be hazardous or not and we have not the tools to say which is which.
UK: Responses to the Commission Communication Towards a Thematic Strategy on the Prevention and Recycling of Waste may provide discussion on this question.
### ANNEX I

#### 1.3 General requirements on uniformity

1.3.1 Are there any specific implementation tools in use in your country to ensure the uniformity of the IPPC permits for similar installations?

<table>
<thead>
<tr>
<th>Country</th>
<th>Yes or no</th>
<th>Please, specify the implementation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Belgium</td>
<td>Yes</td>
<td>Use is made of standard operating conditions for the Brussels-Capital Region and a permit template.</td>
</tr>
<tr>
<td>Croatia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>Yes</td>
<td>Uniformity is ensured by the establishment of a Technical Committee which consults on the conditions of air and water pollution permits.</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Yes</td>
<td>Yes, but only particularly — the Ministry of Environment coordinate this work through the working group (participations from the Regions authorities) and AIP (Integrated Prevention Agency). There are also other discussion forums.</td>
</tr>
<tr>
<td>Estonia</td>
<td>Yes</td>
<td>IPPC ACT: § 9, (5) The Minister of the Environment may establish additional requirements to permits in some categories of activities by a regulation.</td>
</tr>
<tr>
<td>Finland</td>
<td>Yes</td>
<td>We have a permit model for environmental permits. All permit conditions should be based on BAT.</td>
</tr>
<tr>
<td>Germany</td>
<td>Yes</td>
<td>a) uniformity of the content of the permit: similar conditions for similar installations. Instructions can be found in subsequent rules e.g. Technical Instructions on Air Quality Control (TA Luft — First General Administrative Regulation Pertaining to the Federal Immission Control Act) and the Technical Instructions on Noise Prevention (TA Lärm — Sixth General Administrative Regulation Pertaining to the Federal Immission Control Act); instructions provided by “Länder”-working-groups on questions of waste, immission control and water, and especially the instructions on the interpretation of the Fourth Ordinance for the Implementation of the Federal Immission Control Act (Ordinance Concerning Installations Subject to Licensing Requirements); b) uniformity of the structure: permits are granted under the Administrative Procedure Act. Therefore permits must at least meet the conditions of the Administrative Procedure Act.</td>
</tr>
<tr>
<td>Greece</td>
<td>Yes</td>
<td>We can assume as an implementation tool, that specific public officers (with particular expertise to specific industrial sectors) are involved in the IPPC permit procedure.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes</td>
<td>Sectoral Permit Templates, Sectoral BAT Guidance (known in Ireland up to 2003 as BATNEEC — see at <a href="http://www.epa.ie/licences/batnee.htm">www.epa.ie/licences/batnee.htm</a>, Sectoral technical working groups which continuously examine and keep abreast of issues in any given sector and this information is used to inform the permitting and enforcement processes. Within EPA there is review of all draft permits by acknowledged EPA ‘experts’ for any given sector. Regular meetings with industry representatives for feedback on permit processes. Also EPA research on benchmarking with IPPC sectors (Environmental Benchmarking for IPC Industries) at <a href="http://www.epa.ie/r_d/Research_Reports.htm">www.epa.ie/r_d/Research_Reports.htm</a></td>
</tr>
<tr>
<td>Italy</td>
<td>Yes</td>
<td>The competent authority is developing national guidelines.</td>
</tr>
<tr>
<td>Slovakia</td>
<td>-</td>
<td>Not yet, no IPPC permit has not been issued until now. Act on IPPC is in effort from August 1, 2003. IPPC Department of the Slovak Inspectorate of the Environment - responsible for issuing IPPC permits - was established to the same date (August 1, 2003).</td>
</tr>
<tr>
<td>Spain</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>Yes and no</td>
<td>There is no such tool in Swedish legislation. However, the environmental court or the county administrative board have to consider the application based on the same legal regulations and case-law. According to chapter 23 section 1, appeals against judgments delivered by environmental courts may be made to the Superior Environmental Court, unless other provision is made. According to chapter 23 section 9 appeals against judgments or decisions of the Superior Environmental Court may be made to the Supreme Court, unless other provision is made. However, according to chapter 23 section 8 appeals may not be made against judgments and decisions of the Superior Environmental Court in cases which the first instance were tried by a municipality or an administrative authority. The above described procedure should at least ensure that similar installations are considered with the same legal background. As mentioned above it is also possible to appeal a delivered judgement and that way case-law are created by the higher courts. Another way of ensuring uniformity is to submit applications for consideration to government agencies and others that can plead in cases. Government agencies, for example the Swedish environmental protection agency, have also issued guidelines and regulations on various issues in the environmental code.</td>
</tr>
</tbody>
</table>
The regulations corresponding to Article 9 of the IPPC Directive, backed up by extensive regulatory guidance, exemplified in what can be accessed through www.environment-agency.gov.uk/business/444304. See also: IPPC H1 Horizontal Guidance Note: Environmental Assessment & Appraisal of BAT (www.environment-agency.gov.uk/commondata/105385/h1v6_jul03guidance_608809.pdf)

The Environment Agency for England and Wales has developed a permit template with a number of standard conditions to encourage a consistent approach to permitting.

1.3.2 What are the typical causes of non-uniformity?

<table>
<thead>
<tr>
<th>Country</th>
<th>Cause(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>There is not enough practical experience with non-uniformity. Non-uniformity mainly is due to different plant site situations.</td>
</tr>
<tr>
<td>Belgium</td>
<td>Evolution of the operating conditions. Not updating the environmental permit (there are still some environmental issues that are valid that were issued before the decree on environmental permits was issued) Adjustments case by case (if necessary making use of the results of the environmental impact study or the environmental impact report) A planning has been compiled for adjusting the IPPC permits and where possible impose the same conditions on the IPPC companies.</td>
</tr>
<tr>
<td>Croatia</td>
<td>N/A</td>
</tr>
<tr>
<td>Cyprus</td>
<td>Not yet encountered.</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>Specific technology that needs more information than generally established.</td>
</tr>
<tr>
<td>Finland</td>
<td>In Finland we have 16 different permit authorities in two levels: 3 environmental permit authorities and 13 regional environment centres and the guidance of the Ministry of the Environment is very weak.</td>
</tr>
<tr>
<td>Germany</td>
<td>Different interpretation of guidelines by different officials in charge.</td>
</tr>
<tr>
<td>Greece</td>
<td>-</td>
</tr>
<tr>
<td>Ireland</td>
<td>Maturity of Sector; Site Location (rural-urban, inland — on coast, etc); Compliance History; Age of Facility; Public Concern. Also there are differences between permits for solely ‘Merchant’ waste operations (Category 5 of IPPC Directive) and operations where waste operations (Recovery or Disposal) are an associated activity to another primary activity.</td>
</tr>
<tr>
<td>Italy</td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
<td>None</td>
</tr>
<tr>
<td>Spain</td>
<td>In Spain we have 17 Autonomous Communities and each one carries out the implementation of the legislation and as there is not much communication among them, everyone is doing in its own way.</td>
</tr>
<tr>
<td>Sweden</td>
<td>The operator’s possible commitments that may go beyond what is usually required. Furthermore, site specific conditions may be applied in each case, due to the characteristics and location of an installation and to the environmental conditions in the surroundings.</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>UK IPPC permits are uniform in what they cover. But you will be aware that the actual permit conditions necessarily have to take into account of each installation’s technical characteristics, location and local environmental conditions. Accordingly, where appropriate and necessary, site specific conditions may be incorporated in the permit.</td>
</tr>
</tbody>
</table>
### 1.3.3 Are there variations in waste requirements within the industrial sectors (Annex I of the IPPC Directive)?

<table>
<thead>
<tr>
<th>TABLE 12</th>
<th>No</th>
<th>In waste prevention</th>
<th>In waste recycling</th>
<th>In waste recovery</th>
<th>In waste disposal</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Waste Treatment Act 2002 in general does not differentiate between industrial sectors.</td>
</tr>
<tr>
<td>Belgium</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>For the time being, no conditions are being imposed yet in the environmental permit for the prevention, recycling, re-use and dumping. The Brussels-Capital Region does have a waste substances plan, but this does not yet entail a real obligation for the companies. The strategy and main lines of the plan include the following: Dematerialisation: waste prevention at the source, inspection of the methods of production, consumption and rational use and management of the natural resources. The dematerialisation intends to achieve the same level of economic development or welfare by consuming fewer material and energy natural resources: growth of waste production must be uncoupled from economic growth. Re-use: the region will promote the re-use and repair of products. Re-use lengthens the useful life of products Making the producers more responsible: producers are made responsible for managing the waste of their products when they become waste. The decision of 18 July 2002 introduces an obligation to take back certain types of waste: scrapped vehicles, waste from electrical and electronic appliances, batteries, car tyres, etc.</td>
</tr>
<tr>
<td>Croatia</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyprus</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td></td>
<td>x</td>
<td>Variations depends on the environmental baseline conditions of the different sites of the industries.</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Estonia</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>General Model Administrative Regulations to Art. 5 par.1 Nr. 3 Federal Immission Act on prevention and recycling of waste of the Länder working group on immission control for several industrial sectors. They have been established for installations according to nr. 1.1, 2.2, 2.5, 2.6, 3.3, 5.1, 5.2, 6.1 and 6.7 of Annex I of the IPPC Directive. These regulations were developed several years ago and have not been dated up. So they give information and hints on typical wastes and possible procedures.</td>
</tr>
<tr>
<td>Greece</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>Also there are differences between permits for solely ‘Merchant’ waste operations (Category 5 of IPPC Directive) and operations where waste operations (Recovery or Disposal) are an associated activity to another primary activity.</td>
</tr>
<tr>
<td>Italy</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Slovakia</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Yes to all of these, for the reason given in 1.3.2.</td>
</tr>
</tbody>
</table>
1.3.4 Has any research been carried out concerning the uniformity of the permits for similar installations?

<table>
<thead>
<tr>
<th>TABLE 13</th>
<th>Yes or no</th>
<th>Please specify</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>Yes</td>
<td>Being compiled for the IPPC companies.</td>
</tr>
<tr>
<td>Croatia</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Cyprus</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Estonia</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td>Yes</td>
<td>Finnish Environment Institute and Confederation of Finnish Industry and Employers have carried out some researches (Elise Sahivirta et al.: “Uniform implementation of the Environmental Protection Act, 2003”).</td>
</tr>
<tr>
<td>Germany</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td>No</td>
<td>Same as 1.3.1.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes</td>
<td>By industrial interest/lobby groups for sectors like Power, Rendering and Intensive Agriculture.</td>
</tr>
<tr>
<td>Italy</td>
<td>No</td>
<td>At the moment only few permits have been released by the regional and provincial authority.</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>No</td>
<td>Not with regard to waste conditions.</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Yes</td>
<td>The Environment Agency for England and Wales has developed a database of permit conditions and has carried out reviews of permits issued to determine the effectiveness of the permitting process and consistency of approach. The Environment Agency is currently conducting research to assess the permitting issues in connection with the waste minimisation requirements of IPPC.</td>
</tr>
</tbody>
</table>

Comments:
Belgium: Study by external study bureau.
Greece: As already mentioned, the fact that the IPPC Directive is recently transposed in the Greek legislation, has as result limited knowledge of various effects in several issues, here uniformity.
Spain: As no one permit has been issued yet we can not answer.
ANNEX I

2 Authorities and other organisations

2.1 Competent authorities

2.1.1 Which ministry or authority is responsible for the national policy on waste?

<table>
<thead>
<tr>
<th>Country</th>
<th>Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Federal Ministry of Agriculture, Forestry, Environment and Water Management; Department VI - Environmental Engineering and Waste Management</td>
</tr>
<tr>
<td>Belgium</td>
<td>Brussels Institute for Management of the Environment</td>
</tr>
<tr>
<td>Croatia</td>
<td>Ministry of environmental protection, physical planning and construction, Ministry of health, Ministry of economy</td>
</tr>
<tr>
<td>Cyprus</td>
<td>Environment Service, Ministry of Agriculture Natural Resources and Environment</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Ministry of the Environment of the Czech Republic</td>
</tr>
<tr>
<td>Estonia</td>
<td>Government of Estonian Republic</td>
</tr>
<tr>
<td>Finland</td>
<td>The Ministry of the Environment</td>
</tr>
<tr>
<td>Germany</td>
<td>Federal Ministry for the Environment, Nature Conservation and Nuclear Safety</td>
</tr>
<tr>
<td>Greece</td>
<td>Ministry for the Environment Physical Planning and Public Works (Central Authority)</td>
</tr>
<tr>
<td>Ireland</td>
<td>Ministerial Department of Environment, Heritage &amp; Local Government Ministerial Department of Agriculture, Food &amp; Rural Affairs — for Animal By-product Regulations Ministerial Department of Communications, Marine &amp; Natural Resources — for mining waste Environmental Protection Agency act as Policy advisor</td>
</tr>
<tr>
<td>Italy</td>
<td>The Ministry of Environment</td>
</tr>
<tr>
<td>Slovakia</td>
<td>Ministry of the Environment of the Slovak Republic</td>
</tr>
<tr>
<td>Spain</td>
<td>The Ministry of Environment in the Central Government in Madrid and also the one in each Autonomous Community</td>
</tr>
<tr>
<td>Sweden</td>
<td>The Ministry of the Environment and the Swedish Environmental Protection Agency</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Department of Environment, Food and Rural Affairs for England, Scottish Executive, National Assembly Wales, Department of Environment (Northern Ireland)</td>
</tr>
</tbody>
</table>

2.1.2 Which ministry or authority is competent for giving guidance on waste in IPPC permits?

<table>
<thead>
<tr>
<th>Country</th>
<th>Authority</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Federal Ministry of Agriculture, Forestry, Environment and Water Management; Department VI - Environmental Engineering and Waste Management</td>
</tr>
<tr>
<td>Belgium</td>
<td>Brussels Institute for Management of the Environment</td>
</tr>
<tr>
<td>Croatia</td>
<td>N/A</td>
</tr>
<tr>
<td>Cyprus</td>
<td>Environment Service, Ministry of Agriculture Natural Resources and Environment</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Ministry of Environment and Integrated Prevention Agency — (the organization whose objective is to provide the state administration, operators and the public with the professional support in the implementation of IPPC)</td>
</tr>
<tr>
<td>Estonia</td>
<td>Ministry for the Environment</td>
</tr>
<tr>
<td>Finland</td>
<td>The Ministry of the Environment</td>
</tr>
<tr>
<td>Germany</td>
<td>Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, the environmental ministries of the Bundesländer</td>
</tr>
<tr>
<td>Greece</td>
<td>Ministry for the Environment Physical Planning and Public Works (Central Authority)</td>
</tr>
<tr>
<td>Ireland</td>
<td>Environmental Protection Agency</td>
</tr>
<tr>
<td>Italy</td>
<td>The Ministry of Environment, in coordination with the Ministry of Productive Activities and the Ministry of Health</td>
</tr>
</tbody>
</table>
ANNEX I

Slovakia
Slovak Inspectorate of the Environment

Spain
The Ministry of Environment in the Central Government in Madrid and also the one in each Autonomous Community

Sweden
The Swedish Environmental Protection Agency

United Kingdom
The Environment Agency, the Scottish Environment Protection Agency, the Northern Ireland Environment and Heritage Service, and (in relation to local authorities in England and Wales) the Department for Environment, Food and Rural Affairs.

2.1.3 Which authorities are competent for issuing IPPC permits including waste?

<table>
<thead>
<tr>
<th>Table 16</th>
<th>National/Federal level:</th>
<th>Province/&quot;Länder&quot; level:</th>
<th>Regional level:</th>
<th>Local level:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Federal Ministry for Economics and Labour (for Mining Code)</td>
<td>Independent administrative tribunal (for appeals); provincial government (for EIA cases)</td>
<td>Municipality /district authority</td>
<td>-</td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
<td>Brussels Institute for Management of the Environment, permits</td>
<td>Municipality gives their opinion during the procedure.</td>
<td>-</td>
</tr>
<tr>
<td>Croatia</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Cyprus</td>
<td>For liquid and solid waste: Environment Service, Ministry of Agriculture Natural Resources and Environment) and for air emissions: Labor Inspection Department, Ministry of Labor and Social Insurance.</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Ministry of the Environment</td>
<td>-</td>
<td>The Regions</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>-</td>
<td>County Environmental Departments granting of IPPC Permits</td>
<td>-</td>
<td>Municipality Government giving opinion on the permit application</td>
</tr>
<tr>
<td>Finland</td>
<td>-</td>
<td>The environmental permit authorities</td>
<td>The regional environment centres</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>-</td>
<td>Subsequent authorities to the environmental ministries of the Länder, hint: Germany has a federal system. The Länder legislation determines the competent authority / authorities</td>
<td>Depends on the Länder legislation</td>
<td>Depends on the Länder legislation</td>
</tr>
<tr>
<td>Greece</td>
<td>Ministry for the Environment Physical Planning and Public Works (Central Authority) the majority of the cases</td>
<td>-</td>
<td>Regional authorities — few cases</td>
<td>Local authorities — practically never</td>
</tr>
<tr>
<td>Ireland</td>
<td>Environmental Protection Agency</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Italy</td>
<td>The Ministry of Environment</td>
<td>The Province</td>
<td>The Region</td>
<td>Municipality</td>
</tr>
<tr>
<td>Slovakia</td>
<td>-</td>
<td>-</td>
<td>Slovak Inspectorate of the Environment - Regional Inspectorate</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>-</td>
<td>Autonomous Communities which are more similar to Länder level</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>Environmental Courts</td>
<td>NA</td>
<td>County administrative boards</td>
<td>-</td>
</tr>
</tbody>
</table>
2.1.4 Are there any other bodies associated to the permit procedure on waste issues?

<table>
<thead>
<tr>
<th>TABLE 17</th>
<th>Yes or no</th>
<th>Please, describe which and how they are associated:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Belgium</td>
<td>Yes</td>
<td>The local authorities are responsible for the environmental permits for class II and class III classified installations. The Brussels Institute for Environmental Management is responsible for the environmental permits of class IA and IB classified installations. (Decision of the Brussels-Capital Region Government of 4 March 1999 to determine the list of classified installations in class IB, II and III (Belgian Government Gazette of 07/08/1999) Decree of 22 April 1999 to determine the list of classified installations in class IA (G.G. of 05/08/1999) The class IA installations are obliged to carry out an Environmental Impact Study. This study must be carried out by a study bureau recognised by the BIM. The recommendations of the EIS are often taken into account in the environmental permits, they can serve as the basis for specific operating conditions. All the IPPC companies are either class IA or class IB installations.</td>
</tr>
<tr>
<td>Croatia</td>
<td>Yes</td>
<td>County offices are associated to the permit procedure of non-hazardous industrial waste and municipal waste</td>
</tr>
<tr>
<td>Cyprus</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Yes</td>
<td>Integrated Prevention Agency, Regional Hygiene Officer, Working group (under the Ministry of Environment), discussion forums</td>
</tr>
<tr>
<td>Estonia</td>
<td>Yes</td>
<td>Environmental Inspectorate gives inspection information to the issuing authority.</td>
</tr>
<tr>
<td>Finland</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>Yes/No</td>
<td>Depends on the Länder legislation, e.g. Factory Inspectorates (Gewerbeaufsichtsämter) providing technical assessments in Baden-Württemberg.</td>
</tr>
<tr>
<td>Greece</td>
<td>Yes</td>
<td>Local authorities provide licences about waste disposal in designated areas. This license is included in the EIA study.</td>
</tr>
<tr>
<td>Ireland</td>
<td>No</td>
<td>Animal By-Product issues are handled by separate authorisations from the Department of Agriculture, Food &amp; rural Development. In relation to TFS documentation and inspections for waste exported from IPPC sites the Local Municipal Authority are the competent authority of export.</td>
</tr>
<tr>
<td>Italy</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
<td>Yes</td>
<td>District Environmental Offices –issuing statements to waste issues</td>
</tr>
<tr>
<td>Spain</td>
<td>No</td>
<td>In Galicia all the bodies are in our Ministry of Environment. I do not know in the other Autonomous Communities</td>
</tr>
<tr>
<td>Sweden</td>
<td>Yes</td>
<td>The Swedish Environmental Protection Agency and other expert authorities, e.g. the Swedish National Board of Fisheries, the county administrative boards and the municipalities can give there opinions on the applications</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Yes</td>
<td>The UK Regulations all contain requirements for the relevant regulator to consult other statutory organisations about each IPPC permit application. These always include the relevant health authority, the Food Standards Agency, the relevant nature conservancy council and the local authority [note 1], with other organisations specified according to the nature of the activity or activities carried out at the installation. On water issues the Statutory Water Undertaker may be consulted. In determining whether to grant the IPPC permit application, and if so with what conditions, the regulator is required to consider any representations received from these or any other [note 2] organisations or persons. Note 1: Or, where in England and Wales the local authority is the regulator, the Environment Agency. Note 2: Applications have to be advertised by the applicant locally and, as appropriate, in the London, Edinburgh or Belfast Gazette, thus providing opportunity for persons to make representations to the regulator.</td>
</tr>
</tbody>
</table>
2.1.5 Which authorities are responsible for monitoring compliance with waste related permit conditions in IPPC installations?

<table>
<thead>
<tr>
<th>TABLE 18</th>
<th>National/Federal level:</th>
<th>Province/“Länder” level:</th>
<th>Regional level:</th>
<th>Local level:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Federal Ministry for Economics and Labour (for Mining Code)</td>
<td>provincial government (for EIA cases)</td>
<td>Municipality / district authority</td>
<td>-</td>
</tr>
<tr>
<td>Belgium</td>
<td></td>
<td></td>
<td>Brussels Institute for Management of the Environment, inspection</td>
<td>-</td>
</tr>
<tr>
<td>Croatia</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Cyprus</td>
<td>For liquid and solid waste: Environment Service, Ministry of Agriculture Natural Resources and Environment) and for air emissions: Labor Inspection Department, Ministry of Labor and Social Insurance.</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>The Ministry of the Environment; The Czech Environmental Inspectorate</td>
<td>-</td>
<td>The Regions</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>Information Centre of the Ministry for the Environment</td>
<td>County Environmental Department, Environmental Inspectorate</td>
<td>-</td>
<td>Municipal Government</td>
</tr>
<tr>
<td>Finland</td>
<td>-</td>
<td>-</td>
<td>The regional environment centres</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>-</td>
<td>Depends on the Länder legislation</td>
<td>Depends on the Länder legislation</td>
<td>Depends on the Länder legislation</td>
</tr>
<tr>
<td>Greece</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ireland</td>
<td>Environmental Protection Agency</td>
<td>-</td>
<td>-</td>
<td>Municipal Authorities for some aspects of TFS documentation (in addition to EPA)</td>
</tr>
<tr>
<td>Italy</td>
<td>-</td>
<td>The Province</td>
<td>The Regional Environmental Protection Agencies (ARPA)</td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
<td>-</td>
<td>-</td>
<td>Slovak Inspectorate of the Environment – Regional Inspectors</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>-</td>
<td>Autonomous Communities which are more similar to Länder level</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>-</td>
<td>NA</td>
<td>County administrative boards</td>
<td>Municipalities</td>
</tr>
</tbody>
</table>

Comment:
Greece: The monitoring procedure is assigned to the permitting authority (see also 2.1.3).
2.1.6 Is the inspection authority same as the permitting authority in your country?

<table>
<thead>
<tr>
<th>Country</th>
<th>Yes or no</th>
<th>Please, describe which and how they are associated:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Yes</td>
<td>(+) only one authority responsible for an installation, knows the installation from the very beginning; (-) a more “independent” control would be possible, if inspections would be carried out by a different authority.</td>
</tr>
<tr>
<td>Belgium</td>
<td>Yes</td>
<td>Advantage: the inspection can be carried out quickly if necessary; the inspectors can be asked for advice when the permit is being made up; mutual cooperation.</td>
</tr>
<tr>
<td>Croatia</td>
<td>No</td>
<td>Disadvantages: conflicts in interpretation of legislative provisions Advantages: the permit issuing does not influence inspection control</td>
</tr>
<tr>
<td>Cyprus</td>
<td>Yes</td>
<td>The main advantage is that staff knows well the function of the installations. The main disadvantage is that priorities are usually on permitting and therefore time allocated for inspection is not enough.</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Yes/No</td>
<td>The Ministry of the Environment shall carry out control of an integrated permit or the operation of an installation, whose operation can significantly detrimentally affect the environment of an affected state, and shall proceed pursuant to this Act on the basis of the results of the control; the Czech Environmental Inspectorate shall control compliance with obligations laid down by this Act or the integrated permit. Sometime is the lack of exchange of information.</td>
</tr>
<tr>
<td>Estonia</td>
<td>No</td>
<td>Disadvantages - problems of information exchange, information is not available, problems of co-operation, advantages — action is taken in the cases of non-compliance concerning liability of the company, good permits are achieved</td>
</tr>
<tr>
<td>Finland</td>
<td>Yes/No</td>
<td>Advantage: The permitting authority knows best the installation so he knows what is important to inspect. Disadvantage: The permitting authority has no time to make inspections.</td>
</tr>
<tr>
<td>Germany</td>
<td>Yes/No</td>
<td>Depends on the Länder legislation, Yes: advantage: only one authority responsible for an installation, the permitting authority knows the installation from the beginning, Disadvantage: the staff of the permitting and inspection authority often has no time to carry out the inspections. No: Advantage. In case of separation between permitting and inspection authority inspectors are not occupied with permitting. Inspections have to be carried out.</td>
</tr>
<tr>
<td>Greece</td>
<td>No</td>
<td>Recently an independent Environmental Inspection Authority has been established which is responsible for the inspections. Also, the permitting Authority has the right to perform inspections in installations.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes</td>
<td>Advantages are continuity, consistency, reservoir of expertise, ownership, national perspective. Disadvantage can be ‘local’ dimension on enforcement matters</td>
</tr>
<tr>
<td>Italy</td>
<td>Yes</td>
<td>With the support of local technical agencies (ARPs)</td>
</tr>
<tr>
<td>Slovakia</td>
<td>Yes</td>
<td>No experience yet, no permit has been issued until now</td>
</tr>
<tr>
<td>Spain</td>
<td>No</td>
<td>In Galicia, we can be more objective and as we work in the same General Directorate we can have conversations and any kind of relation to talk about the permit</td>
</tr>
<tr>
<td>Sweden</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Yes</td>
<td>Advantages of permitting and enforcement being carried out by same authority include consistency of approach and integration of the permitting regime. The view of the Scottish Environment Protection Agency is that enforcement action ranges from formal written warnings to prosecution, and separating these forms of action would make it more time consuming to enforce permit conditions.</td>
</tr>
</tbody>
</table>

Comments:
Belgium: The authority issuing the permit and the Inspectorate are two departments of the Brussels Institute for Management of the Environment: the two departments are located in the same building
Italy: At the moment the IPPC permit system in Italy is still developing, the competent authorities are working on different national guidelines, both horizontal and vertical, and the number of released permits is quite inconsistent in order to supply general information.
Spain: I do not know about other Autonomous Communities
2.2 Other organisations

2.2.1 Is there any transboundary co-operation between environmental authorities in the waste aspects in issuing IPPC permits?

<table>
<thead>
<tr>
<th>TABLE 20</th>
<th>Yes or no</th>
<th>Please, specify what kind of co-operation and between whom and whether this co-operation is linked to mandatory co-operation for EIA procedures:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>No</td>
<td>No experience (no transboundary cases so far).</td>
</tr>
<tr>
<td>Belgium</td>
<td>Yes</td>
<td>Meeting between the representatives of IPPC of the three Regions of Belgium</td>
</tr>
<tr>
<td>Croatia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>Yes</td>
<td>IPPC Act: § 13. Application for permit for production with transboundary effects Where the operation of an installation is likely to have significant negative effects on the environment of another state, or where the existence of a permit is requested by a state who finds that such production is likely to significantly affect its environment, the issuer of permits shall ensure the forwarding of the application for a permit, pursuant to the procedure provided for in the international agreements in force in Estonia, to the competent authorities and the public of the relevant state in order to involve them in the process of the grant of the permit.</td>
</tr>
<tr>
<td>Finland</td>
<td>Yes</td>
<td>The EIA procedure has to be finalised before the permit is granted for installations that may lead to harmful changes in the environment. In the Environmental Protection Act § 110 is stipulated about transboundary impact as follows: “Should the environmental impact of activities referred to in this Act extend to other countries, they shall be interpreted under this Act as comparable to impact in Finland, unless otherwise dictated by an agreement made with the country concerned. Section 9 shall apply to pollution of territorial waters or economic zones.” Finland has watercourses together with Sweden, Norway and Russia.</td>
</tr>
<tr>
<td>Germany</td>
<td>Yes</td>
<td>The provisions of the IPPC directive are implemented in the German legislation. According to Article 11a of the Ordinance concerning the Licensing Procedure (9. BImSchV) and Article 9a of the Environmental Impact Assessment Act (UVPG) the permitting authority has to make sure the transboundary public participation and the participation of authorities. Questions of waste are only one aspect. Authorities and the public can participate in the the permit process. The authorities of the other country can submit their statements on the application and the public of the other country can submit objections. Both can participate at the date for public discussion. The obligation to transboundary cooperation is not linked to EIA procedures. If a project that needs permitting under the Federal Immission Control Law can possibly have considerable environmental impacts in another state there has to be a transboundary participation of the authorities and the public.</td>
</tr>
<tr>
<td>Greece</td>
<td>No</td>
<td>At the moment, Greece does not have the same borders with any other EU Member State. That is why there is no transboundary co-operation in issuing IPPC permits.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes</td>
<td>There is cross-border liaison with the authorities in Northern Ireland (part of UK) on matters to do with the likes of waste movement, EIA, catchment management (emissions loadings), etc.</td>
</tr>
<tr>
<td>Italy</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>Yes</td>
<td>If a project is likely to have significant effects on the environment in another country, Sweden forwards the information on the project to the Point of Contact in that country and invites the country to participate in the EIA procedure, all according to the Espoo Convention and Directive 85/337.</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Yes</td>
<td>Schedule 4 to each of the UK Regulations specifies procedures for grant of permits. Paragraphs 17 to 19 of Schedule 4 in each case specifies a procedure for the Ministers to follow when aware that the operation of an installation for which a permit application has been made is likely to have significant negative effects on the environment of another Member State [note 1]. This procedure requires the Minister to send a copy of the application to whichever Member State(s) may be affected. The Minister may act independently, on a regulator’s advice or at the request of another Member State. The regulator must not determine the application until the Minister confirms that consultation with the other Member State is complete. The regulator must take account of any representations from other Member States. Note 1: For these purposes, “Member State” specifically includes Norway, Iceland and Liechtenstein as members of the European Economic Area.</td>
</tr>
</tbody>
</table>
### 2.2.2 List which other organisations are involved (either directly or indirectly) in waste issues in IPPC installations?

<table>
<thead>
<tr>
<th>TABLE 21</th>
<th>Trade associations</th>
<th>NGOs</th>
<th>Other, please specify</th>
<th>None</th>
<th>Please, specify in which way they are involved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>x</td>
<td></td>
<td></td>
<td>None</td>
<td>NGOs might be involved in the permitting process only in case of EIA-installations</td>
</tr>
<tr>
<td>Belgium</td>
<td></td>
<td></td>
<td>Recognised study bureaus to compile impact studies. Recognised institutions for the follow up of the legislation about the obligation to take back certain types of waste: paper, scrapped vehicles, waste from electrical and electronic appliances, batters, car tyres, etc.</td>
<td>Recognised study bureaus to compile impact studies Often when making the recommendations of the EIS, the environmental permits are taken into account, the recommendations can serve as the basis for specific operating conditions</td>
<td></td>
</tr>
<tr>
<td>Croatia</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>Waste Exchange of the Croatian Chamber of Economy, Public participations</td>
</tr>
<tr>
<td>Cyprus</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>They belong to the members of Technical Committees.</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
<td>-</td>
<td>The municipality, in whose territory the installation is or is to be located; the region, in whose territory the installation is or is to be located; civic associations, public benefit societies, federations of employers or chambers of commerce, whose sphere of business consists in enforcing and protecting professional interests or public interests pursuant to the special regulations), and also municipalities or regions in the territory of which this installation may affect the environment, if these participants applied in writing to the authority competent to grant the integrated permit within 30 days of the date of disclosing information from the application to the public pursuant</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Estonia</td>
<td>x</td>
<td></td>
<td></td>
<td>-</td>
<td>Participating in the public hearings of the EIA procedure</td>
</tr>
<tr>
<td>Finland</td>
<td>-</td>
<td>x</td>
<td>The Environmental Register of Packaging PYR Ltd</td>
<td>-</td>
<td>NGOs can complain and give opinions of application during the permit procedure. The Environmental Register of packaging PYR Ltd is a non-profit firm, which works in conjunction with producer organisations. It assists member firms and the authorities in order that the recovery obligations may be fulfilled as economically and as smoothly as possible.</td>
</tr>
<tr>
<td>Country</td>
<td>Involvement</td>
<td>Engagement</td>
<td>Public Involvement</td>
<td></td>
<td></td>
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<tr>
<td>---------</td>
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</tr>
<tr>
<td>Germany</td>
<td>x x</td>
<td>E.g. known civic action groups; depends on Länder legislation, e.g. in Baden Württemberg trade associations are involved, in Schleswig-Holstein associations for nature conservation (recognised acc. to the Federal Nature Conservation Act) and known civic action groups are involved in case of permit procedures including the involvement of the public.</td>
<td>One issue of the application is sent to the associations and groups. They have the right to submit objections and to participate in the date for public discussion. The permit has to be served – apart from the applicant – also to persons and organisations having lodged objections before. (These groups are also involved in permit procedures for EIA-installations).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td>- -</td>
<td>Universities &amp; Research Institutions - Cleaner Technology</td>
<td>NGOs involvement generally related to input and objections to the issue of permits for major industry and particularly industry with notable waste elements (e.g. incineration, landfill). Trade organisations put position papers and argument to permit authority regarding permit procedures, etc. They may also object on behalf of one of their members to certain permit conditions. Both NGO’s &amp; Trade associations lobby Government of Policy issues. There is also a National industry sponsored/funded organisation who are involved in the management of packaging waste are large sites (re. Packaging Waste Directive obligations). See <a href="http://www.repak.ie/">www.repak.ie/</a></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>x x</td>
<td>Associations of the specific industrial sector</td>
<td>The industry sector is involved during the preparation of the guidelines, as a stakeholder.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>- -</td>
<td>District Environmental Offices</td>
<td>Indirectly through meetings to have agreements on different issues.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slovakia</td>
<td>- -</td>
<td>Claimants</td>
<td>NGOs and claimants have the right to speak in the Environmental court and to make an appeal.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>x -</td>
<td>-</td>
<td>NGOs through meetings to have agreements on different issues.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>- x</td>
<td>-</td>
<td>NGOs and claimants have the right to speak in the Environmental court and to make an appeal.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>x x</td>
<td>See on the right and 2.1.4.</td>
<td>The following types of organisations are indirectly involved and support regulated installations on waste issues: Industry Trade Associations – Government and Regulators hold dialogue with industry on policy and approach. NGOs – national waste programmes such as Envirowise (<a href="http://www.envirowise.gov.uk">www.envirowise.gov.uk</a>) and the Manufacturing Advisory Service (<a href="http://www.dti.gov.uk/manufacturing/mas/">www.dti.gov.uk/manufacturing/mas/</a>) provide support and advice on resource efficiency and lean manufacturing. Consultants – support industry in the preparation of permit applications.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3 Waste related conditions in the permit procedure

3.1 Approach and guidance

3.1.1 Has your country developed a specific approach concerning waste prevention, recovery and disposal aspects in IPPC permits?

<table>
<thead>
<tr>
<th>TABLE 22</th>
<th>Yes or no</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Yes + no</td>
<td>Yes and no; No special approaches were developed for IPPC installations. Generally to gain installation permits under Trade and Industry Act, Waste Management Act or Mining Code a Waste Management Concept has to be established. This concept must comprise data on all types of waste produced in regular operation (amount) and prevention, recovery and disposal measures have to be defined (also responsibilities and quality control). These principles also apply with IPPC installations. Guidance to develop a Waste Management Concept exists for certain types of industrial activities (see examples listed in 3.1.2.).</td>
</tr>
<tr>
<td>Belgium</td>
<td>No</td>
<td>At present, conditions are only imposed for the compulsory collection of hazardous waste; conditions are also imposed that are linked to the classified installations. Work is being done within the framework of the review of the IPPC permits.</td>
</tr>
<tr>
<td>Croatia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>Yes</td>
<td>1) Yes, a Strategic Plan for solid and hazardous wastes has been prepared 2) Also we elaborate on the issue of piggeries wastes in order to prepare Best Available Techniques (BAT) for Cyprus.</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Yes</td>
<td>Decree No.554/2002 Coll. On establishing the specimen of the application for integrated permit, the scope and method of filling in of the application.</td>
</tr>
<tr>
<td>Estonia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Finland</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Greece</td>
<td>No</td>
<td>There is a legislative framework about the national plan for waste disposal. Regarding waste prevention and recovery, there is a number of relative projects in small scale.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes</td>
<td>Range of robust permit conditions regulation the storage, recovery &amp; disposal, handling &amp; transport of waste. Policy on requiring waste minimisation &amp; recovery to be included in Environmental Management Systems at installations. Also policy on Residuals Management (closure &amp; aftercare) and Environmental Liability applied to all installations where waste is a substantive issue. See permits on EPA web site at <a href="http://www.epa.ie/">www.epa.ie/</a> licences/licdb/ Set.htm and also at <a href="http://www.epa.ie/">www.epa.ie/</a> licences/ipcl.htm</td>
</tr>
<tr>
<td>Italy</td>
<td>No</td>
<td>General provisions are given through the issuing of national guidelines, in accordance with the IPPC discipline.</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>Yes + no</td>
<td>Sweden comply with Article 3 c) of the IPPC Directive.</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Yes</td>
<td>The Regulators issue guidance to companies on using a BAT based approach for waste minimisation. Guidance requires a systematic approach to raw material management and waste minimisation through auditing and the development of action plans to implement improvements to a time scale approved by the regulator. See 1.3.1 for link to Regulators guidance and details of these requirements.</td>
</tr>
</tbody>
</table>
3.1.2 Is guidance provided to the applicant dealing with waste prevention, recovery and disposal of the activity (see Annexes II A and II B of the Directive 75/442/EEC on waste)?

<table>
<thead>
<tr>
<th>TABLE 23</th>
<th>Official documents (guides)</th>
<th>Official application forms</th>
<th>Guidance provided by trade associations</th>
<th>Guidance provided by companies</th>
<th>Other; please, specify:</th>
<th>No guidance</th>
<th>Please, specify what kind of guidance:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Federal Waste Management Plan (treatment principles); general guidance to develop Waste Management Concepts for various types of industrial activities;</td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>On the Internet site the processing and removal codes are specified in the section on waste register, but without any additional explanation</td>
<td></td>
</tr>
<tr>
<td>Croatia</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Cyprus</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>Integrated Prevention Agency provide the state administration, operators and the public with the professional support in the implementation of IPPC — They prepared the Guidance for the operators of an installation of 5.4 category (Landfills)</td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Integrated Prevention Agency provide the state administration, operators and the public with the professional support in the implementation of IPPC — They prepared the Guidance for the operators of an installation of 5.4 category (Landfills)</td>
<td></td>
</tr>
<tr>
<td>Estonia</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>Companies dealing with environmental know-how and consulting are fulfilling the applications on contract bases, permitting authority helps interpreting legal acts and gives advice as having experience in this field.</td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Waste master plan &amp; regional waste plans; “Classification of waste as hazardous waste — the basis and methods for evaluation” guidance.</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Depends on Länder legislation, Schleswig-Holstein provides official application forms including questions concerning waste prevention, recovery and disposal. Other Länder use such forms too.</td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>Applicants seek guidance in private companies, usually environmental consultancies, about waste management and other environment-related issues.</td>
<td></td>
</tr>
</tbody>
</table>
### Annex I

<table>
<thead>
<tr>
<th>Country</th>
<th>x</th>
<th>x</th>
<th>x</th>
<th>-</th>
<th>-</th>
<th>-</th>
<th>See <a href="http://www.epa.ie/licences/iplic.htm">www.epa.ie/licences/iplic.htm</a> and see application form &amp; guidance for IPC application</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ireland</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>National guidelines</td>
</tr>
<tr>
<td>Italy</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Recommended documents by the Slovak Inspectorate of the Environment</td>
</tr>
<tr>
<td>Slovakia</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>In some cases by professional associations</td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>Examples of official guidance: Waste generated in the iron and steel industry. Guidance on landfills. Guidance on hazardous waste. Examples of good waste management in the industry</td>
</tr>
<tr>
<td>Sweden</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Examples of official guidance: Waste generated in the iron and steel industry. Guidance on landfills. Guidance on hazardous waste. Examples of good waste management in the industry</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Guidance for each main industry sector. See the Web link given in 1.3.1.</td>
</tr>
</tbody>
</table>

### 3.1.3 Is there any co-operation between environmental authorities and other organisations guiding waste issues in the permit procedure?

<table>
<thead>
<tr>
<th>Table 24</th>
<th>Yes or no</th>
<th>Please, specify what kind of co-operation and between whom:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>No</td>
<td>No, not for the permit procedure itself.</td>
</tr>
<tr>
<td>Belgium</td>
<td>Yes</td>
<td>Recognised study bureaus to compile impact studies.</td>
</tr>
<tr>
<td>Croatia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>Yes</td>
<td>There are official Committees with Members Agencies and NGOs. The responsibility of the Committees is the comments and discussion on the on the conditions of the permit.</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>Yes</td>
<td>Cooperation before issuing the permit is done between the permitting authority and Environmental Inspectorate.</td>
</tr>
<tr>
<td>Finland</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>Yes</td>
<td>Environmental authorities and waste agencies, see 3.1.2.</td>
</tr>
<tr>
<td>Greece</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes</td>
<td>Trade Association &amp; NGO’s in Annual feedback meetings. Also objections to permit conditions from same.</td>
</tr>
<tr>
<td>Italy</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Yes</td>
<td>See 2.1.4 and 2.2.2.</td>
</tr>
</tbody>
</table>

**Comments:**

**Greece:** As it was already mentioned, the fact that the IPPC Directive is recently transposed in the Greek legislation has as result the limited knowledge of various effects in several issues, here guidance.
### 3.2 Application documents

#### 3.2.1a What kind of information concerning waste is the operator required to include in the application?

<table>
<thead>
<tr>
<th>TABLE 25</th>
<th>Description of the processes</th>
<th>Process flow charts</th>
<th>Use of raw and auxiliary materials</th>
<th>Use of fuels</th>
<th>Use of other forms of energy</th>
<th>Water consumption</th>
<th>Use of chemicals</th>
<th>Use of hazardous substances</th>
<th>Process optimisation</th>
<th>Assessment of BAT by the applicant (compared to BREFs or similar installations / benchmarking)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
</tr>
<tr>
<td>Belgium</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>- See also: 1)</td>
</tr>
<tr>
<td>Croatia</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<td>x</td>
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<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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</tr>
<tr>
<td>Finland</td>
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<td>x</td>
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<td>x</td>
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<tr>
<td>Germany</td>
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<td>x</td>
<td>x</td>
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</tr>
<tr>
<td>Greece</td>
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<td>x</td>
<td>x</td>
<td>x</td>
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</tr>
<tr>
<td>Ireland</td>
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<td>x</td>
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<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
</tr>
<tr>
<td>Italy</td>
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<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
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<tr>
<td>Spain</td>
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<td>x</td>
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</tr>
<tr>
<td>Sweden</td>
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<td>x</td>
<td>x</td>
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<td>x</td>
<td>x</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

**Comments:**

**Belgium:** 1) there is now increasing demand for this in the environmental impact report but we do not really ask for a comparison with the current situation to be made.
3.2.1b What kind of information concerning waste is the operator required to include in the application?

<table>
<thead>
<tr>
<th>TABLE 26</th>
<th>Substituting chemicals with less harmful substances</th>
<th>Minimisation of the consumption of single-use products</th>
<th>Internal recycling of waste/by-products generated by the applicant</th>
<th>Internal energy recovery of waste/by-products generated by the applicant</th>
<th>Reuse of water</th>
<th>Product design</th>
<th>Packaging</th>
<th>Total estimated amount of generated waste</th>
<th>Total estimated amount of generated hazardous waste</th>
<th>Waste amount per production unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>-</td>
</tr>
<tr>
<td>Belgium</td>
<td>x 2)</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Croatia</td>
<td>-</td>
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<td>-</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
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</tbody>
</table>

Comments:
Belgium: 2) The operators must comply with the following legislation in order to observe European Directive 1999/13/EC concerning the limitation of the emission of volatile organic compounds (VOC) as a result of the use of organics solvents in certain work and at installations: Decisions of 03/07/2003 with regard to the limitation of the mission of volatile organic compounds:
- in installations for surface cleaning; in installations for the production of varnish, lacquer, paint, ink and pigments that make use of solvents, at certain installations in the vehicle coating industry that make use of solvents, in certain printing activities or certain work of the printing industry such as varnishing and putting on film. Decision of 15/05/2003 to determine the operating conditions for certain installations for respaying vehicles or parts of vehicles that make use of solvents.
### 3.2.1c What kind of information concerning waste is the operator required to include in the application?

#### TABLE 27

<table>
<thead>
<tr>
<th>Country</th>
<th>EWC (European Waste Catalogue) code</th>
<th>Origin of waste</th>
<th>Storage of waste on site</th>
<th>Transportation of waste</th>
<th>Data on waste recycled (estimated)</th>
<th>Data on waste recovered (estimated)</th>
<th>Data on waste disposed (estimated)</th>
<th>Monitoring plan</th>
<th>Risk screening methodology</th>
<th>Environmental management system</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
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</tbody>
</table>

**Comments:**

**Belgium:** 3) the producer of hazardous waste must keep a waste register and at the government’s request must present it. This register can also consist of invoices for the collection. They must state the code.

**Sweden:** A monitoring plan is often included in the application for a permit, but can also be considered separately by the competent authorities.
### ANNEX I

#### 3.2.1d What kind of information concerning waste is the operator required to include in the application?

**TABLE 28: Previous measures concerning waste generation**

<table>
<thead>
<tr>
<th></th>
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<td>Czech Republic</td>
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<td>Estonia</td>
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<td>Finland</td>
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<td>Germany</td>
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<tr>
<td>Greece</td>
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<tr>
<td>Ireland</td>
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<tr>
<td>Italy</td>
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</tr>
</tbody>
</table>

**Other; please, specify**

- Transportation of waste (see above): only inside the installation itself
- The content of the application is determined by the decision of the Brussels-Capital Region of 10 June 1993 to determine the content of a dossier for the application of an environmental statement or an environmental licence.
- Information about the education of the staff, topographic maps and information about areas and methods of treatment of wastes and waste disposal
- Plan for professional education (training) of the installation staff
- Insurance against environmental damage
- Depends partly on the application forms of the Länder, e.g. waste amount per production unit, Risk screening methodology obligatory in case of installations subject to the 12th Ordinance for the Implementation of the Federal Immission Control Act, Seveso II installations
- Accidents & Emergencies; Environmental Liability Provisions (accidents & aftercare)
- The information requested will depend on the specific activity; the competent authorities will define the specific requirements for the different sectors, according to the national guidelines
### ANNEX I

<table>
<thead>
<tr>
<th>Country</th>
<th>Yes</th>
<th>No</th>
<th>Please specify</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slovakia</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
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<td>x</td>
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<tr>
<td>Sweden</td>
<td>-</td>
<td>-</td>
<td>Please see the answer to question 1.1.2</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>-</td>
<td>x</td>
<td>Auditing systems</td>
</tr>
</tbody>
</table>

This document provides all the necessary information and is furthermore accompanied by an environmental impact report and for the large companies by an environmental impact study drawn up by an external study bureau. The authority investigates whether the application is complete, if not the applicant must make it complete.

#### 3.2.2 Do you have different environmental permit application forms for different sectors?

<table>
<thead>
<tr>
<th>TABLE 29</th>
<th>Yes; please, specify for which sectors:</th>
<th>No</th>
<th>Please specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Croatia</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cyprus</td>
<td>Water Pollution Control Solid and Hazardous Waste Air Emission Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
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</tr>
<tr>
<td>Estonia</td>
<td>-</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td>Boiler plants, fish farms, livestock shelters, fur farms, asphalt mixing plants and crushing plants (general form for other sectors).</td>
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<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>-</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td>-</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>General IPPC, Timber Preservation, Intensive Agriculture (pig &amp; poultry operations), Landfill, Transfer Stations</td>
<td>-</td>
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</tr>
<tr>
<td>Italy</td>
<td>-</td>
<td></td>
<td>The information requested will depend on the specific activity; the competent authorities will define the specific requirements for the different sectors, according to the national guidelines</td>
</tr>
<tr>
<td>Slovakia</td>
<td>1) landfills 2) all the other installations (than the landfills)</td>
<td>-</td>
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<tr>
<td>Spain</td>
<td>x</td>
<td></td>
<td>When using hazardous substances they need an external emergency plan</td>
</tr>
<tr>
<td>Sweden</td>
<td>-</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Yes</td>
<td>-</td>
<td>A generic electronic application template is tailored where appropriate</td>
</tr>
</tbody>
</table>

4 This document provides all the necessary information and is furthermore accompanied by an environmental impact report and for the large companies by an environmental impact study drawn up by an external study bureau. The authority investigates whether the application is complete, if not the applicant must make it complete.
## 3.3 Permit consideration

3.3.1 Are there any other specific items than those mentioned in question 3.2.1 that the authority takes into consideration when evaluating waste prevention, recovery and disposal?

<table>
<thead>
<tr>
<th>Table 30</th>
<th>Use of BAT</th>
<th>Cost-benefit analysis</th>
<th>Planned measures for environmental investments</th>
<th>Monitoring programme</th>
<th>Other; please, specify:</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td>Separation of waste flows</td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>x x</td>
<td>-</td>
<td>x</td>
<td></td>
<td></td>
<td>The producers of hazardous waste and processors of all waste must keep a waste register. The processors of waste must send this every quarter to the BIM, as must the people who take their own waste substances to another region and the people who collect or remove those waste substances for the account of third parties.</td>
</tr>
<tr>
<td>Croatia</td>
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<td>-</td>
<td></td>
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<td>-</td>
<td>-</td>
<td>Comparison with best available techniques</td>
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</tr>
<tr>
<td>Germany</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Studies by ABAG (waste agency Baden Württemberg), expert’s opinion, papers of the federal environment office, model administrative guidelines to Art. 5 par.1 Nr. 3 Federal Immission Control Act of the Länder working group on Immission Control (see 1.3.3); guidelines of the German Association of Engineers.</td>
</tr>
<tr>
<td>Greece</td>
<td>x x</td>
<td>Not so often</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>In the permit application, specific measures are included that are planned to be implemented in cases of installations upgrading.</td>
</tr>
<tr>
<td>Ireland</td>
<td>x x x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>Many depending on the site and the nature of the operation proposed.¹</td>
</tr>
<tr>
<td>Italy</td>
<td>- - -</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>The competent authorities will define the specific requirements for the different sectors, according to the national guidelines</td>
</tr>
<tr>
<td>Slovakia</td>
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<td>-</td>
<td>x</td>
<td>-</td>
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</tbody>
</table>
### 3.3.2 Are there any integrated methods to evaluate waste management, emissions into air, discharges into water and soil together in the permit procedure?

<table>
<thead>
<tr>
<th>Country</th>
<th>Answer</th>
<th>Advantages and Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Yes and no</td>
<td>Federal Ministry of Agriculture, Forestry, Environment and Water Management: Operationalising integrated installation assessment on a local level (study, 2000) and “IPPC projects according to Waste Management and Trade and Industry Acts” (brochure issued by Salzburg Regional Government; 2001). Both are methodic guidance, not finally solving the question of how to qualify or evaluate the interaction between different protected interests (e.g. health issues vs. air vs. soil etc.)</td>
</tr>
<tr>
<td>Belgium</td>
<td>Yes</td>
<td>It is taken into account in the environmental impact report for class 1B installations and in the environmental impact study for class 1A installations. The study bureau or applicant must describe the different impacts of the enterprise on the soil, noise, waste, air, etc. as well as the measures that are taken to resolve the nuisance. Advantages: when compiling the environmental permit we are already aware of the derangements caused by the enterprise and we can take the measures into account.</td>
</tr>
<tr>
<td>Croatia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>No</td>
<td>Coordination between different Agencies</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>No</td>
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<tr>
<td>Germany</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Greece</td>
<td>Yes</td>
<td>Waste management, emissions into air, discharges into water and soil together, are evaluated in the permit procedure as a result of the EIA process and the subsequent issue of the approval of environmental terms.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes</td>
<td>The application form specifically asks that cross media load transfer be dealt with in permit applications. See forms at <a href="http://www.epa.ie/licences/iplic.htm">www.epa.ie/licences/iplic.htm</a>. No specific tool or method, just expert assessment of application, aided by process flow diagrams. Pollution Emission Registers are very useful. Though the Commission did not include waste as one of the areas to be accounted in the EU EPER guidance document. This was not helpful in relation to integrated assessment of emissions. In Ireland we considered it essential and so have included accounting of pollutants emitted in waste. This helps to highlight and unusual shifting of pollutant loads to one emission stream.</td>
</tr>
<tr>
<td>Italy</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
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<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>No</td>
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</tr>
<tr>
<td>Sweden</td>
<td>No</td>
<td>No specific tool or method, just expert assessment of application.</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Yes</td>
<td>IPPC H1 Horizontal Guidance Note: Environmental Assessment &amp; Appraisal of BAT (<a href="http://www.environment-agency.gov.uk/commondata/105385/h1v6_jul03guidance_608809.pdf">www.environment-agency.gov.uk/commondata/105385/h1v6_jul03guidance_608809.pdf</a>)</td>
</tr>
</tbody>
</table>
3.3.3 Do you have any guidelines on how the choice of waste management measures are dealt with in the permit?

<table>
<thead>
<tr>
<th>TABLE 32</th>
<th>Yes or no</th>
<th>Please, specify what kind of guidelines:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Yes</td>
<td>Waste Management Concepts; Federal Waste Management Plan (treatment principles);</td>
</tr>
<tr>
<td>Belgium</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Croatia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>Yes</td>
<td>Binding Rules</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Guidance in different sectors</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Good Agricultural Practice</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>No</td>
<td>Everything is managed through the act No.185/2001 Coll. On waste</td>
</tr>
<tr>
<td>Estonia</td>
<td>Yes</td>
<td>Minister for the Environment has given a regulation about permit application forms and permit tables, where one part is dealing specially with waste management.</td>
</tr>
<tr>
<td>Finland</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Greece</td>
<td>No</td>
<td>Each case of permit is addressed individually, taking into account local conditions and sector specific characteristics.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes</td>
<td>Articulated by the definition of BAT (BATNEEC) in Section 5 of the Environmental Protection Agency Acts 1992 and 2003, and further expanded in sectoral specific BAT guidance. In general the EU waste management hierarchy is preferred (prevent – reduce – reuse – …etc.)</td>
</tr>
<tr>
<td>Italy</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>

3.3.4 How in practice, do qualitative changes in waste generation affect an existing permit (Article 12 of the IPPC Directive)?

<table>
<thead>
<tr>
<th>TABLE 33</th>
<th>Reconsideration of the permit</th>
<th>Consideration/reconsideration of a permit condition</th>
<th>No practical incidence on existing permit</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>Depends on whether and how a qualitative change in waste characteristics affects the environment.</td>
</tr>
<tr>
<td>Belgium</td>
<td></td>
<td>x</td>
<td></td>
<td>Legal provision:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- every 15 years, the permits must be reviewed. (articles 61 and 62 of the OPE)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>- OPE article 64 § 1: the authority that first issued the permit shall change the environmental permit if it determines that it does not entail the appropriate conditions, including making use of the best technologies available for avoiding, limiting or resolving the threat, nuisance or discomforts for the environment and public health or no longer does so. It can also make changes at the request of the holder of the environmental permit on condition that it is not accompanied by a greater threat or greater nuisance to the environment and public health. Procedure: it is checked that the change is not accompanied by nuisance: if there is no new nuisance, the operating condition in question is changed, if there is nuisance a new environmental permit must be applied for the change (that is to say the entire procedure).</td>
</tr>
<tr>
<td>Country</td>
<td>Croatia</td>
<td>Cyprus</td>
<td>Czech Republic</td>
<td>Estonia</td>
</tr>
<tr>
<td>-----------------------</td>
<td>---------</td>
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<td>----------------</td>
<td>---------</td>
</tr>
<tr>
<td></td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>x</td>
</tr>
<tr>
<td>Croatia</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
</tr>
<tr>
<td>Finland</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Greece</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ireland</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
</tr>
<tr>
<td>Italy</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**ANNEX I**

**Croatia**

There is provision for this issue in the Laws.

**Cyprus**

It is too early to qualify it.

**Czech Republic**

**Estonia**

IPPC Act: § 24. Grounds for updating requirements of permit

The requirements of the permit shall be updated if:

1) the norms provided by legislation on which the requirements of the permit are based are changed;
2) the pollution caused by the installation is of such significance that negative effects are caused to the environment of the site of the installation, and the existing emission limit values of the permit need to be revised, or new such values need to be determined;
3) changes in the best available techniques make it possible to significantly reduce emissions or the hazard created thereby without imposing excessive costs;
4) in order to prevent accidents, techniques different from those determined by the permit are required;
5) significant changes in the nature or functioning of an installation have been imposed or are proposed.

**Finland**

If the qualitative changes are remarkable or if waste becomes more harmful it can affect so that reconsideration of a permit condition or permit conditions is necessary.

**Germany**

Qualitative and/or quantitative changes are resulting from changes in processes/raw material and thus are affecting the permits.

**Greece**

The applicant informs the competent authority about the changes and the installation permit is reconsidered according to the legislative procedures.

**Ireland**

Only in exceptional circumstances would the permit have to be reconsidered or conditions altered. I.e. substantial change within the meaning of the IPPC Directive. Permits are written in a way to permit certain flexibility. If the change was not deemed a negative one from an environmental perspective, the remedy is usually found via general enforcement actions and not permit change.

**Italy**

The changes are studied and after it is decided if they need to change the permit.

**Slovakia**

**Spain**

The changes are studied and after it is decided if they need to change the permit.

**Sweden**

Qualitative or quantitative changes in waste generation may cause a reconsideration of the permit or permit conditions if the change is substantial and have significant negative effects on humans and the environment.

**United Kingdom**

Regulation 16 of the England and Wales Regulations, regulation 12 of the Scotland Regulations and regulation 16 of the Northern Ireland Regulations each require the operator of an IPPC permitted installation to provide written notification and description of a proposed change in operation at least 14 days before making the change. Under the UK Regulations, failure to do so is an offence. Change in operation’ is defined in regulation 2 of each of the UK Regulations as ‘a change in the nature or functioning or an extension of the installation . . . which may have consequences for the environment’. This definition, corresponding to that given in Article 2(10)(a) of the Directive, may cover changes in operation even if they remain consistent with the existing permit conditions. However, on receipt of the notification, the regulator may determine that permit conditions need to be varied even so. And an operator may in any case apply to the regulator for a variation to the conditions of a permit. Powers and procedures for variation of permit conditions are prescribed by regulation 17 of the England and Wales Regulations, regulation 13 of the Scotland Regulations and regulation 17 of the Northern Ireland Regulations. In practice there have been few instances as IPPC is still at a relatively early stage.
### 3.3.5 How in practice, do quantitative changes in waste generation affect an existing permit (Article 12 of the IPPC Directive)?

<table>
<thead>
<tr>
<th>TABLE 34</th>
<th>Reconsideration of the permit</th>
<th>Consideration/reconsideration of a permit condition</th>
<th>No practical incidence on existing permit</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Austria</strong></td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>Depends on whether and how a quantitative change in waste characteristics affects the environment.</td>
</tr>
<tr>
<td><strong>Belgium</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>OPE : article 7 § 2: before an installation as a result of a change in one of the elements of the permit is renovated or expanded, the operator shall notify the authorised body by means of a registered letter. The authorised body has one month after receipt of the notification in question to determine whether or not an application for an environmental permit must be submitted. Procedure: The operator shall notify the B.I.M. of the expansion, which then has 30 days to determine whether a new permit is required or not. If there is a new class 1A or 1B item, then a new permit is required (but only for that item). If the threshold increases by 25 %, for a class 1A or class 1B item, the operator will also be asked to apply for a new permit. If no new permit is required, the B.I.M. will change the operating conditions to adjust them to the new situation. Practice: An additional procedure is being set up for the IPPC companies, namely: A planning for an annual inspection of the IPPC companies has been perfected. An annual mailing is planned to the companies to point out their obligation to keep the B.I.M. informed of the evolution of their company.</td>
</tr>
<tr>
<td><strong>Croatia</strong></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
</tr>
<tr>
<td><strong>Cyprus</strong></td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>There is provision for this issue in the Laws.</td>
</tr>
<tr>
<td><strong>Czech Republic</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>It is too early to qualify it.</td>
</tr>
<tr>
<td><strong>Estonia</strong></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
</tr>
<tr>
<td><strong>Finland</strong></td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>Usually also something else is changing within the installation at the same time and this can lead to a reconsideration of the permit or a permit condition.</td>
</tr>
<tr>
<td><strong>Germany</strong></td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>See 3.3.4</td>
</tr>
<tr>
<td><strong>Greece</strong></td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>The applicant informs the competent authority about the changes and the installation permit is reconsidered according to the legislative procedures.</td>
</tr>
<tr>
<td><strong>Ireland</strong></td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>Very exceptional. Similar arguments to 3.3.4.</td>
</tr>
<tr>
<td><strong>Italy</strong></td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Slovakia</strong></td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Spain</strong></td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>The changes are studied and after it is decided if they need to change the permit.</td>
</tr>
<tr>
<td><strong>Sweden</strong></td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>Please see the answer to question 3.3.4.</td>
</tr>
<tr>
<td><strong>United Kingdom</strong></td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>As described in 3.3.4.</td>
</tr>
</tbody>
</table>
### 3.3.6 How do the other waste related directives (e.g. Directive 1999/31/EC on the landfill of waste and Directive 91/689/EEC on hazardous waste) affect the IPPC permitting procedure?

<table>
<thead>
<tr>
<th>Country</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Other directives influence the permitting procedure indirectly. E.g. waste data gained upon these Directives could influence the permitting procedure (e.g. Ordinance on the Landfill of Waste – or Landfill Ordinance - restricts the disposal of certain types of waste this could affect an IPPC permit).</td>
</tr>
<tr>
<td>Belgium</td>
<td>If a company is a collector of hazardous waste, it must also apply for recognition as a collector of hazardous waste, in addition to this environmental permit. To obtain recognition there is a different procedure that takes 120 days and the recognition is issued by the Minister for the Environment. The environmental permit always includes that all the hazardous waste must be collected by a recognised collector of hazardous waste.</td>
</tr>
<tr>
<td>Croatia</td>
<td>N/A</td>
</tr>
<tr>
<td>Cyprus</td>
<td>No practical experience yet.</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>It is not possible to get the integrated permission (permit) when the installation is not correspondent with the e.g. Directive 1999/31/EC on the landfill of waste and Directive 91/689/EEC on hazardous waste (they are both integrated in our legislation).</td>
</tr>
<tr>
<td>Estonia</td>
<td>-</td>
</tr>
<tr>
<td>Finland</td>
<td>Both of the directives are implemented in our national legislation and affect that way in the permitting.</td>
</tr>
<tr>
<td>Germany</td>
<td>Other Directives influence the permitting procedure indirectly. They are implemented in the German legislation. So they are applicable through the German regulations and could — as a result — affect the IPPC permitting procedure.</td>
</tr>
<tr>
<td>Greece</td>
<td>The competent authority for issuing permits takes into account the directives for landfill of waste and hazardous waste and relevant national legislation and includes specific environmental conditions to the permits of each installation.</td>
</tr>
<tr>
<td>Italy</td>
<td>The IPPC permit is released according to the requirements of the 1999/31/EC and the 91/689/EEC.</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No affect</td>
</tr>
<tr>
<td>Spain</td>
<td>The report from the Waste people should be supported by that legislation.</td>
</tr>
<tr>
<td>Sweden</td>
<td>Both directives are fully implemented in Swedish legislation. This means that the directive rules are applicable through the Swedish rules and regulations in every case that concerns an IPPC permit.</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>The Landfill (England and Wales) Regulations 2002 amend the Pollution Prevention and Control (England and Wales) Regulations 2000 in respect of landfills, such that the requirements of the Landfill Directive (99/31/EC) are met. The Landfill (Scotland) Regulations 2003 do the same there and similar provisions will be made in Northern Ireland. Directive 91/689/EEC is referred to where necessary in the Pollution Prevention and Control Regulations.</td>
</tr>
</tbody>
</table>

**Comment:**

**Estonia:** Principles of these directives are laid down in Waste Act and must be taken into account during IPPC permitting procedure.
### 3.4 Permit conditions

3.4.1 How is the requirement for waste prevention, recovery and disposal incorporated into the permit?

<table>
<thead>
<tr>
<th>TABLE 36</th>
<th>As a binding permit condition</th>
<th>As a general consideration within other permit conditions</th>
<th>As a general consideration in the general/recital part of the permit</th>
<th>Not incorporated in the permit</th>
<th>Please, give some examples of the wordings of the requirements:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prevention</td>
<td>Recovery</td>
<td>Disposal</td>
<td>Prevention</td>
<td>Recovery</td>
</tr>
<tr>
<td>Austria</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Through a permit condition an operator could be forced to use less dangerous chemical substances (causing the same effects) in an industrial process in order to reduce the amount of hazardous waste.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>The section in all the environmental permits that relates to waste is formulated as follows based on the decision concerning the waste register: Conditions with regard to waste: All the hazardous waste substances such as..., waste oil and PCB/PCTs must be removed by a collector recognised by the Brussels-Capital Region. A proof of receipt must be issued for every delivery of hazardous waste substances, waste oil and PCB/PCTs.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Croatia</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Cyprus</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Finland</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>The permit conditions must be fulfilled. One condition is that wastes are avoided, unavoidable wastes are recycled and non-recyclable wastes are disposed. The operator has to describe his measures in the application. Declared waste issues in the application document will become part of the licence document afterwards. In case that the description in the application is not sufficient, the permit contents specific conditions and obligations that make sure the compliance with the conditions for the granting of a permit.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>It will be sent in the near future.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>See examples of permits on the EPA licensing webpages at <a href="http://www.epa.ie/licences/icdcb/Set.htm">www.epa.ie/licences/icdcb/Set.htm</a></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>At the moment the competent authorities are developing the national guide-lines, evaluating the issue case by case.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### ANNEX I

<table>
<thead>
<tr>
<th>Country</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Slovakia</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
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<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Please see the answer to question 3.4.5 for examples of binding permit conditions.

Please refer to Appendix 1 for examples of permit conditions from Environment Agency and Scottish Environment Protection Agency. These issues would be expected to be addressed by the operator at application stage. Permit conditions may then be applied, depending on the determination of that application. Disposal and recovery operations may therefore be included in the permit or as a general consideration within the determination process.

---

The producer of hazardous waste substances, waste oil and PCB/PCTs shall keep a register that at least contains the following information: the code and name of the waste substance in accordance with the European catalogue of waste substances; the amount of waste, expressed in mass or volume; the date that the waste substance was collected; the name and address of the collector and transporter of the waste substance; the name and address of the addressee of the waste substance; the code and name of the treatment method of the waste substance. The register can consist of the invoices (proof of receipt) of the waste collection if they contain the above information. In addition, specific conditions may be imposed depending on the situation. For companies that relate to the obligation to take back a number of waste substances, they must indirectly cooperate in achieving the re-use of and recycling percentages and re-use and useful application percentages. The decision of 18 July 2002 of the Brussels-Capital Region imposes an obligation to take back the following waste substances: used batteries and car batteries, worn tyres, medicines that have reached their expiry date, scrapped vehicles, waste from used electric and electronic appliances, waste oil and film waste and food oils and greases.
### 3.4.2 What kind of binding permit conditions concerning waste are in use or will be used?

<table>
<thead>
<tr>
<th>TABLE 37</th>
<th>Waste generation per unit of product</th>
<th>Improvement of the recovery of waste</th>
<th>Use of raw materials</th>
<th>Minimisation of the use of packaging materials</th>
<th>Linked to the waste prevention plan:</th>
<th>Obligation to examine different alternatives for managing waste issues</th>
<th>Obligation to examine different alternatives for waste prevention</th>
<th>Use of BAT in waste management</th>
<th>Other; please, specify</th>
<th>Please, specify</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In use</td>
<td>Future use</td>
<td>In use</td>
<td>Future use</td>
<td>In use</td>
<td>Future use</td>
<td>In use</td>
<td>Future use</td>
<td>In use</td>
<td>Future use</td>
</tr>
<tr>
<td>Austria</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
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<td>Greece</td>
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<td>Spain</td>
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<td>x</td>
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<td>x</td>
<td>x</td>
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</tr>
<tr>
<td>United Kingdom</td>
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<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

The obligation to use BAT in waste management derives from the obligations of operators of installations subject to licensing (Art. 5 BImSchG) in combination with the Criteria for Determining the Best Available Technology (Appendix to Art. 3 para. 6 BImSchG).

Waste testing; record keeping; reporting. Up to three years ago we required IPPC industries to report their waste production as a ration of raw materials use. This was a much fairer means of assessing wastefulness and did not penalise productivity.

At the moment the competent authorities are developing the national guidelines, evaluating the issue case by case.

Requirements on on-site landfills.

Storage and handling, record keeping.
3.4.3 Are site specific targets used in the permit procedure to advance the objectives of waste prevention and recovery?

<table>
<thead>
<tr>
<th>Country</th>
<th>Yes or no</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Belgium</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Croatia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>Yes</td>
<td>The permitting authority is free in choice.</td>
</tr>
<tr>
<td>Finland</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Greece</td>
<td>No</td>
<td>Note: The question is not clear to me.</td>
</tr>
<tr>
<td>Ireland</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Italy</td>
<td>No</td>
<td>At the moment the competent authorities are developing the national guidelines, evaluating the issue case by case.</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>

3.4.4 Are there some special problems in considering the permit conditions of waste prevention, recovery and disposal?

<table>
<thead>
<tr>
<th>Country</th>
<th>Waste prevention</th>
<th>Waste recovery</th>
<th>Waste disposal</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Permit conditions according to the Austrian legal principle of the necessity to submit an permit application (including a well defined project) to the competent authority must not affect a project in a way that the character or the main intentions are changed. Permit conditions that would restructure a project completely or would cause the need for a totally altered equipment are generally not allowed (e.g. a boiler system is defined through the means of fuelling. A competent authority’s ruling to use other type of fuel than defined in the project would cause a significant change and therefore would be inadmissible.</td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>For the time being, no conditions are being imposed in the environmental permit for prevention, recycling, re-use and dumping. The Brussels-Capital Region does have a waste substances plan, but this does not yet really entail an obligation for the companies.</td>
</tr>
<tr>
<td>Croatia</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>There are not yet any proper places for the disposal of electronic wastes as for the used wheels of the cars. The studies that are being carried out will suggest some solutions.</td>
</tr>
</tbody>
</table>
### 3.4.5 Please, give some precise examples of permit conditions about waste prevention, recovery and disposal

<table>
<thead>
<tr>
<th>Country</th>
<th>Prevention</th>
<th>Recovery</th>
<th>Disposal</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Czech Republic</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Not yet</td>
</tr>
<tr>
<td><strong>Estonia</strong></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td><strong>Finland</strong></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td><strong>Germany</strong></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>In special cases when non-homogenous and unpredictable compositions of wastes occur, there might be problems.</td>
</tr>
<tr>
<td><strong>Greece</strong></td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>When the waste disposal will take place outside the installation there might be a problem if there is not an approved disposal area.</td>
</tr>
<tr>
<td><strong>Ireland</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>In general permitting authorities do not have the process engineering experts in-house to establish/set practical and meaningful waste prevention.cleaner technologies for all the categories of activity. This expertise lies with the facility operators for the most part. The permit must thus encourage operators to examine their processes (which they know best) and identify where cleaner production possibilities are available. Permit authorities can also foster sharing of technology knowledge between operations in a sector and promote cleaner technology research. An example would be the CGPP at <a href="http://www.epa.ie/r_d/cgpp.html">www.epa.ie/r_d/cgpp.html</a> and <a href="http://www.ctc-cork.ie/cgpp/">www.ctc-cork.ie/cgpp/</a>. This is the best way to obtain change, as it will rarely be possible for permit authorities to be as expert in production processes as the operators. Solutions generated within industry also tend to be readily embraced by industry, they have ownership. One area of particular difficulty has been the regulation/permit control of landspreading of pig manure waste (2.2 Mt/a) on third party lands in the vicinity around the installation. This has been controversial as third party farms do not wish to be seen to be ‘controlled’ or ‘associated’ with an IPPC regulated industry. They also argue they are not managing a ‘waste’.</td>
</tr>
<tr>
<td><strong>Italy</strong></td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td><strong>Slovakia</strong></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td><strong>Spain</strong></td>
<td>Yes</td>
<td>-</td>
<td>Yes</td>
<td>-</td>
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<tr>
<td><strong>Sweden</strong></td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td><strong>United Kingdom</strong></td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Non-homogenous and unpredictable composition of wastes where this forms the raw material, for example waste treatment plants</td>
</tr>
</tbody>
</table>

**TABLE 40**

<table>
<thead>
<tr>
<th>Country</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Austria</strong></td>
<td>See 3.4.1. another example: The use of certain chemical substances is prohibited, in case a significantly higher potential of risk arises: the incineration of chromium impregnated/treated used wood is prohibited</td>
</tr>
<tr>
<td><strong>Belgium</strong></td>
<td>The used solvents have to be recovered, recycled on the place or given to a licensed collector. The waste of paper has to be collected and eliminated with the objective to be recovered. Where specific measures on waste prevention, recovery and disposal are mentioned in the permit application, they can become binding permit conditions.</td>
</tr>
<tr>
<td><strong>Croatia</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Cyprus</strong></td>
<td>Disposal: Used oils should be collected properly and given to a licensed collector who will transfer them to a specific licensed enterprise for further treatment. Records should be kept. Every 6 months they will have to report to the Environment Service.</td>
</tr>
<tr>
<td><strong>Czech Republic</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Estonia</strong></td>
<td>Only these wastes can be generated that are specified with exact quantities in the permit.</td>
</tr>
</tbody>
</table>
### Annex I

#### Finland
- “The quantity of metal scrap arising in the production shall be reduced in such a way that in year x the respected amount of waste is 5% less than in year y.”
- “In procurement of chemicals and raw material shall if possible returnable or recyclable containers and packaging be used and avoid small packaging sizes and single use packages.
- “The operator shall at the latest by year x submit to the competent authority a proposal concerning measures to minimize the total amount of wastes arising in the production.”
- “The operator shall in connection with the annual report deliver to the competent authority an account of the implemented measures to reduce the amount and hazardousness of waste during the past year.”

#### Germany
- Limitation of HCl production as a by-product and commitment to setting up a recovery scheme for inevitably produced HCl.

#### Greece
- In the case that specific measures on waste prevention, recovery and disposal are mentioned in the EIA (during the permitting procedure), these constitute permit conditions, as well.

#### Ireland
- See all permits at www.epa.ie/licences/licdb/Set.htm

#### Italy
- At the moment the competent authorities are developing the national guidelines, evaluating the issue case by case.

#### Slovakia
- No example yet.

#### Spain
- -

#### Sweden
- “The operator shall make a plan for the management of waste.”
- “Fly ashes and bottom ashes shall be used when possible.”
- “The residues currently recovered, i.e. . . . , shall be recovered as far as it is technically possible and economically reasonable.”
- “The waste management shall be approved by the inspection authority.”
- “The sludge shall in the first place be incinerated or, in case of contamination, be composted.”
- Where specific measures on waste prevention, recovery and disposal are mentioned in the permit application, they become binding permit conditions.

#### United Kingdom
- See Appendix 1 for examples of permit conditions used by the Environment Agency for England and Wales and those used by the Scottish Environment Protection Agency.

### 3.5 Best available technique (BAT)

#### 3.5.1 Are the EU BREFs useful when assessing waste prevention, recovery and disposal in the permitting process?

<table>
<thead>
<tr>
<th>Country</th>
<th>Waste prevention</th>
<th>Waste recovery</th>
<th>Waste disposal</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Practical value of all BREFs published so far is rather limited as only little information is given about topics like waste prevention, recovery and disposal. Future BREFs should include a description of various feasible production techniques and their environmental assessment (e.g. to list up all possible ways and input materials to produce chlorine and an assessment of possible environmental impacts).</td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>We are basing ourselves on the BREFs for compiling operating conditions. For the IPPC companies we are still at the beginning of the process and do not have any results yet.</td>
</tr>
<tr>
<td>Croatia</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>Cyprus</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>There are useful for comparison the installation with the technologies used in EU.</td>
</tr>
<tr>
<td>Estonia</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Finland</td>
<td>No</td>
<td>No</td>
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</tr>
<tr>
<td>Germany</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Not enough experience with BREFs up to now.</td>
</tr>
<tr>
<td>Greece</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Ireland</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>The BREF’s are in general very heavy going. Limited use.</td>
</tr>
<tr>
<td>Italy</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>-</td>
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</table>
### 3.5.2 Are there differences concerning waste prevention, recovery and disposal in BREFs between new and existing IPPC installations?

<table>
<thead>
<tr>
<th>Country</th>
<th>Waste prevention</th>
<th>Waste recovery</th>
<th>Waste disposal</th>
<th>Please, specify</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>At the moment no answer possible. BREFs should be checked by IPPC Bureau / IPTS Seville in order to identify possible differences.</td>
</tr>
<tr>
<td>Belgium</td>
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<tr>
<td>Croatia</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>Cyprus</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
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<tr>
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<td>-</td>
</tr>
<tr>
<td>Finland</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>According to the IPPC Directive (and Art. 67 par. 5 Federal Immission Control Act), existing installations must meet the requirements by October 2007 at the latest.</td>
</tr>
<tr>
<td>Greece</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Regarding the new installations, waste prevention, recovery and disposal in BREFs are stricter.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Italy</td>
<td>No</td>
<td>No</td>
<td>No</td>
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<tr>
<td>Slovakia</td>
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<td>-</td>
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<tr>
<td>Sweden</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Analysis of BREFs required to answer this question.</td>
</tr>
</tbody>
</table>

### 3.5.3 Is data in current BREFs sufficient for considering waste prevention, recovery and disposal in new and existing IPPC installations?

<table>
<thead>
<tr>
<th>Country</th>
<th>New installation</th>
<th>Existing installation</th>
<th>Please, specify</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>No</td>
<td>No</td>
<td>No, these topics were not thoroughly dealt with in the BREFs.</td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
<td>-</td>
<td>Our limited experience with the subject does not allow us to give a correct answer.</td>
</tr>
<tr>
<td>Croatia</td>
<td>-</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>Cyprus</td>
<td>Yes</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
<td>-</td>
<td>There are not sufficient BREFs for all this area. BREFs can be use in the general level (related BREFs).</td>
</tr>
<tr>
<td>Estonia</td>
<td>No</td>
<td>No</td>
<td>There are country-specific sectors based on oil-shale, that are not likely to be dealt in BREFs.</td>
</tr>
<tr>
<td>Finland</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Greece</td>
<td>Yes</td>
<td>Yes</td>
<td>Although the answer is positive, there is not yet enough knowledge, as very few permits have been issued until now.</td>
</tr>
<tr>
<td>Country</td>
<td>Yes/No Waste</td>
<td>Yes/No BREFs</td>
<td>Remarks</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------</td>
<td>--------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Ireland</td>
<td>No/No</td>
<td></td>
<td>Waste is generally not dealt with in the same detail as say air or water emissions.</td>
</tr>
<tr>
<td>Italy</td>
<td>No/No</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
<td>Yes/Yes</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>-/-</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>No/No</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Yes/Yes</td>
<td></td>
<td>BREFs provide useful indicative benchmark data and information.</td>
</tr>
</tbody>
</table>

### 3.5.4 Are there some specific problems with the use of BREFs concerning waste prevention, recovery and disposal?

<table>
<thead>
<tr>
<th>Country</th>
<th>Yes/No</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>-/No</td>
<td>No concrete experience so far.</td>
</tr>
<tr>
<td>Belgium</td>
<td>-/Our</td>
<td>Our limited experience with the subject does not allow us to give a correct answer.</td>
</tr>
<tr>
<td>Croatia</td>
<td>-/N/A</td>
<td></td>
</tr>
<tr>
<td>Cyprus</td>
<td>Yes/It</td>
<td>It is not an easy task to find what you are looking. These documents are very huge.</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Yes/There</td>
<td>There are not appropriate documents.</td>
</tr>
<tr>
<td>Estonia</td>
<td>Yes/There</td>
<td>There are country-specific sectors based on oil-shale, that are not likely to be dealt in BREFs.</td>
</tr>
<tr>
<td>Finland</td>
<td>Yes/BREFs</td>
<td>BREFs have very little data about waste.</td>
</tr>
<tr>
<td>Germany</td>
<td>Yes/BREFs</td>
<td>BREFs currently only available in English language. There is little experience in using BREFs so far.</td>
</tr>
<tr>
<td>Greece</td>
<td>-/There</td>
<td>There is not yet enough knowledge as very few permits have been issued, until now.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes/See 3.3. Prevention is not dealt with in detail. Usually only in outline. Concentration seems to be on safe disposal and some recovery. Huge variation concerning which production residues are wastes.</td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>Yes/Not</td>
<td>Not enough data available.</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No/-</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>-/-</td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>Yes/What</td>
<td>What is found in the BREFs is OK but seldom sufficient if you want to dig into waste problems.</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Yes/BREFs</td>
<td>BREFs reflect industry exchange of information on techniques in waste prevention and recovery. BREFs do not contain much detail on waste management BAT.</td>
</tr>
</tbody>
</table>
3.5.5 How should BREFs be developed in terms of waste prevention, recovery and disposal?

**TABLE 45**

<table>
<thead>
<tr>
<th></th>
<th>More information on general management procedures for waste</th>
<th>More specific information on waste prevention</th>
<th>More specific information on recovery of waste</th>
<th>More specific information on recycling of waste</th>
<th>More information on monitoring the amount and quality of waste</th>
<th>Consistent basis for waste reporting</th>
<th>Consistent basis for crossmedia impacts between waste prevention and other environmental impacts</th>
<th>Other</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td></td>
<td>See 3.5.1.</td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>Our limited experience with the subject does not allow us to give a correct answer.</td>
</tr>
<tr>
<td>Croatia</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>N/A</td>
</tr>
<tr>
<td>Cyprus</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Finland</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td></td>
<td>x</td>
<td>-</td>
<td>-</td>
<td></td>
<td>Definition of analytic methods for waste material and standards for quality monitoring.</td>
</tr>
<tr>
<td>Greece</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>No proposal at the moment.</td>
</tr>
<tr>
<td>Ireland</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td>Consistency within sectors in relation to the classification of certain material streams - are they wastes or by-products!</td>
</tr>
<tr>
<td>Italy</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Poland</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Portugal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td></td>
<td>More information on techniques and benchmarking for sector performance would be helpful.</td>
</tr>
</tbody>
</table>
3.5.6 Are there any particular BREFs that need to be revised early on due to e.g. lack of data and/or conclusions concerning waste prevention, recovery and disposal techniques?

<table>
<thead>
<tr>
<th>TABLE 46</th>
<th>Yes or no</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
<td>Our limited experience with the subject does not allow us to give a correct answer</td>
</tr>
<tr>
<td>Croatia</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>Cyprus</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Finland</td>
<td>No</td>
<td>They all need to be soon revised because of the lack of data concerning waste.</td>
</tr>
<tr>
<td>Germany</td>
<td>Yes</td>
<td>E.g. decommissioning/dismantling of alkali-chlorine-installations &gt; Hg containing wastes. But completion of the BREF production programme should be the main target. Apart from that it is necessary to ensure that the documents do not go out of date too soon.</td>
</tr>
<tr>
<td>Greece</td>
<td>-</td>
<td>Not any proposal at the moment.</td>
</tr>
<tr>
<td>Ireland</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Italy</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>No</td>
<td>General note that completion of the current BREF production programme should be the main focus whilst recognising that a balance of effort is required to ensure that the documents do not go out of date too soon.</td>
</tr>
</tbody>
</table>

3.5.7 Do you use any other international sources than the BREFs to evaluate BAT for waste prevention, recovery and disposal?

<table>
<thead>
<tr>
<th>TABLE 47</th>
<th>OSPAR</th>
<th>HELCOM</th>
<th>Other</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>German “TA Abfall” might be used in certain cases.</td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>Best Available Technology compiled by VITO (Flanders, Belgium) <a href="http://www.emis.vito.be/BBT">www.emis.vito.be/BBT</a> and <a href="http://www.energie-cites/latoilerie.net/">www.energie-cites/latoilerie.net/</a></td>
</tr>
<tr>
<td>Croatia</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>Cyprus</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>World Bank Documents</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>Papers and information from the technical presses.</td>
</tr>
<tr>
<td>Estonia</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>HELCOM Recommendations.</td>
</tr>
<tr>
<td>Finland</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>Not any more for IPPC installations because of EU data, maybe for small industries.</td>
</tr>
<tr>
<td>Germany</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>None</td>
</tr>
<tr>
<td>Greece</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>No, we use only the BREFs.</td>
</tr>
<tr>
<td>Ireland</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>E.g. US (EPA), Environment Canadian, UK EA, Dutch (soil, water &amp; air), German (TA Luft) and Australian technological standards and industry norms.</td>
</tr>
<tr>
<td>Italy</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>No</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>These sources should feed into the BREF information exchange.</td>
</tr>
</tbody>
</table>
3.5.8 Do you have any national sector evaluation of BAT including waste prevention, recovery and disposal?

<table>
<thead>
<tr>
<th>Country</th>
<th>Yes or no</th>
<th>Please, specify</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Yes</td>
<td>Reports by Federal Environment Agency on following BREFs: cement and lime, pulp and paper; iron and steel (all issued in report BE-180, January 2001); non-ferrous metals (BE-202, March 2002); glass production (BE-203, October 2002). State-of-the-art studies for various industrial sectors also exist ( refineries, power plants, chemical industry).</td>
</tr>
<tr>
<td>Belgium</td>
<td>No</td>
<td>The Brussels Capital Region does not have a research centre. The Region of Flanders does: namely the VITO. There are meeting between the three regions with regard to IPPC companies.</td>
</tr>
<tr>
<td>Croatia</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Cyprus</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Yes</td>
<td>The Ministry of the Environment shall ensure monitoring of developments in the best available techniques contained in documents of the European Communities, and publishing and explanation thereof from the standpoint of the environmental impact of the best available techniques; it shall, within its competence, evaluate the application of the best available techniques. Working groups evaluate the BAT and try to specify and define BAT in the Czech conditions.</td>
</tr>
<tr>
<td>Estonia</td>
<td>Yes</td>
<td>Research Institute for Oil-shale industry.</td>
</tr>
<tr>
<td>Finland</td>
<td>Yes</td>
<td>We have sector evaluation of BAT in some national subgroups that are founded under the TWGs like hot galvanizing subgroup/ chemical finishing of metals group.</td>
</tr>
<tr>
<td>Germany</td>
<td>-</td>
<td>E.g. VDI guidelines (guidelines of the association of German engineers), these guidelines include questions of waste prevention, recovery and disposal; see 1.3.3: General Model Administrative Regulations to Art. 5 par.1 Nr. 3Federal Immission Act (Obligations of Operators of Installations Subject to Licensing) on prevention and recovery of waste of the Länder working group on immission control. They have been established for installations according to nr. 1.1, 2.2, 2.5, 2.6, 3.3, 5.1, 5.2, 6.1 and 6.7 of Annex. I of the IPPC Directive. These guidelines were developed several years ago and have not been dated up. So they give information and hints on typical wastes and possible procedures.</td>
</tr>
<tr>
<td>Greece</td>
<td>No</td>
<td>The authorities that issue the IPPC permits do the evaluation of BATs.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes</td>
<td>See our BAT (BATNEEC) Guidance on website at <a href="http://www.epa.ie/licences/batneec.htm">www.epa.ie/licences/batneec.htm</a>. Again very basic in respect of waste prevention in particular.</td>
</tr>
<tr>
<td>Italy</td>
<td>Yes</td>
<td>LCA studies, EMAS.</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>-</td>
<td>The Environment Agency follows a sector based approach to the management of environmental issues. Note: this is not just confined to IPPC ‘BAT’. The Department of Trade &amp; Industry are supporting the development of Sectoral Sustainability Strategies to provide business sectors with a framework to identify and manage economic, environmental and social risks in an integrated way. See: <a href="http://www.dti.gov.uk/sustainability/bo/sa.htm">www.dti.gov.uk/sustainability/bo/sa.htm</a></td>
</tr>
</tbody>
</table>
4 Environmental management systems

4.1 EMAS and ISO 14001

4.1.1 Does the operator’s EMAS or ISO 14001 system have a role in the permit procedure concerning waste prevention, recovery and disposal?

<table>
<thead>
<tr>
<th>TABLE 49</th>
<th>Yes, part of the permit procedure</th>
<th>Yes, background material</th>
<th>No role</th>
<th>Other, please specify:</th>
<th>Please, specify the role of the system:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Croatia</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>The operator submits EMAS or ISO 14001 as supporting documentation for permit issuing.</td>
</tr>
<tr>
<td>Cyprus</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>Voluntary</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>These operators represent a little bit the company’s relation to the environment - but it is not a “extenuating circumstances”</td>
</tr>
<tr>
<td>Estonia</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>These systems are on voluntary bases</td>
</tr>
<tr>
<td>Finland</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>The role is insignificant. The applicant can use it’s data in the application if the system has data that is needed in the application.</td>
</tr>
<tr>
<td>Germany</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>See 4.1.2</td>
</tr>
<tr>
<td>Greece</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ireland</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>The EPA does not endorse either system.. Rather the permit has a generic condition requiring the establishment at the installation or an EMS. The Agency will recognise a bespoke system or either EMAS or ISO14001 as fulfilling the requirements of the permit conditions. See Condition 2 of any licence on the EPA web pages.</td>
</tr>
<tr>
<td>Italy</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>No legal request</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>In England and Wales, Environmental Management Systems (EMAS, ISO 14001 or Company system) is encouraged by the Environment Agency’s guidance. The Environment Agency and the Scottish Environment Protection Agency both recognise that an operator who obtains an EMAS /Quality accreditation may meet a number of requirements of the PPC permit however such accreditation is not mandatory.</td>
</tr>
</tbody>
</table>

4.1.2 Does your legislation support the use of the EMAS or ISO 14001 system in the permit procedure?

<table>
<thead>
<tr>
<th>TABLE 50</th>
<th>EMAS</th>
<th>ISO 14001</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Yes</td>
<td>No</td>
<td>EMAS: see section 21 of Austrian Environmental Management Act: EMAS certified businesses that alterate/change their installations not necessarily require a permit (obligations: operator must report alterations/changes to the competent authority, inform the public, present an Environmental Declaration and a written statement by an environmental expert to certify that environmental matters and third party rights are not affected and no legal objections a raised by neighbours.</td>
</tr>
</tbody>
</table>
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ANNEX I

<table>
<thead>
<tr>
<th>Country</th>
<th>EMAS</th>
<th>ISO 14001</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>No</td>
<td>No</td>
<td>At the moment, there is no support, but in the future we can think to utilise the repost EMAS and ISO like a environmental impact report to simplify the administration.</td>
</tr>
<tr>
<td>Croatia</td>
<td>-</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>Cyprus</td>
<td>No</td>
<td>No</td>
<td>Not yet</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Finland</td>
<td>No</td>
<td>No</td>
<td>If the amount of processing work done by the permit authority is less than the minimum amount of work on which permit fees are officially based by the Ministry of the Environment, companies may be eligible for a discount of up to 35% on the permit fee. It could be possible that an operator’s EMS was a factor that decreased the workload of the permit authority. Also a working group has been set up by the Ministry of the Environment to consider what advantages may arise from EMSs in permitting and supervisory procedures.</td>
</tr>
<tr>
<td>Germany</td>
<td>Yes</td>
<td>No</td>
<td>Art. 58 e of the Federal Immission Control Act empowers the Federal Government to provide by means of statutory provisions for relief measures in respect of the content of the application documents in licensing procedures as well as for relief measures in respect of the supervision regulations. The Federal Government has enacted the Ordinance Concerning Relief Measures in Respect of Supervision Regulations for Audited Company Sites. Apart from that, the EMAS documents have to be taken into consideration in the permit procedure. According to the Ordinance concerning the Licensing Procedure (9. BImSchV) they may replace the application documents on condition that they provide the same data and information that is needed for the permit procedure. In addition companies with an environmental management scheme according to the EMAS-standard may be privileged via regulations on the federal Länder-level.</td>
</tr>
<tr>
<td>Greece</td>
<td>Yes</td>
<td>Yes</td>
<td>The Law 2965/2001, about the “sustainable development in the region of Attica”, refers to the mandatory implementation of EMAS/ISO 14001 system until the year 2005 to all the “high and medium nuisance” installations that operate in the region of Attica.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes</td>
<td>Yes</td>
<td>The legislation recognises the need for procedures for environmental management including corrective actions and stipulates that these matters can be conditioned in a permit (Section 86 of the Environmental Protection Agency Acts 1992 and 2003).</td>
</tr>
<tr>
<td>Italy</td>
<td>Yes</td>
<td>Yes</td>
<td>For all the EMAS installations the permit renewal is every 8 years, instead of 5 years. For the waste management facilities with EMAS or ISO 14001 registration is allowed a decrease of the financial guarantees.</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>-</td>
<td>No legal request</td>
</tr>
<tr>
<td>Sweden</td>
<td>No</td>
<td>No</td>
<td>No legal request</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>No</td>
<td>No</td>
<td>Not specifically referred to in legislation. See Government and Regulators guidance for details. See Chapter 8 of Defra Practical Guide: <a href="http://www.defra.gov.uk/environment/ppc/ippcguide/pdf/ippcguide_ed2.pdf">www.defra.gov.uk/environment/ppc/ippcguide/pdf/ippcguide_ed2.pdf</a> ; Also web link under section 1.3.1)</td>
</tr>
</tbody>
</table>

4.1.3 Does the operator’s EMAS or ISO 14001 system influence inspection of waste prevention, recovery and disposal?

<table>
<thead>
<tr>
<th>Country</th>
<th>EMAS</th>
<th>ISO 14001</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Yes</td>
<td>No</td>
<td>EMAS: see section 25 of Environmental Management Act: in case EU regulations do not require different periods, environmental inspections are restricted to a 5 year interval (exception: if the competent authority becomes suspicious of an operator who is very likely to violate environmental laws).</td>
</tr>
<tr>
<td>Belgium</td>
<td>No</td>
<td>No</td>
<td>Inspection is more easy, but the installation is not released from the obligation.</td>
</tr>
<tr>
<td>Croatia</td>
<td>Yes</td>
<td>Yes</td>
<td>Inspection procedure is more thorough and faster.</td>
</tr>
<tr>
<td>Cyprus</td>
<td>No</td>
<td>No</td>
<td>Not yet</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>No</td>
<td>No</td>
<td>Broadly the inspections in the company which has established this operators is more easy.</td>
</tr>
<tr>
<td>Estonia</td>
<td>Yes</td>
<td>Yes</td>
<td>Less inspection is needed if these systems are in use.</td>
</tr>
<tr>
<td>Finland</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>
4.1.4 Are there any specific advantages of the operator’s EMAS or ISO 14001 system in the permit procedure concerning waste prevention, recovery and disposal?

<table>
<thead>
<tr>
<th>Country</th>
<th>EMAS</th>
<th>ISO 14001</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Yes</td>
<td>No</td>
<td>See 4.1.2.</td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
<td>-</td>
<td>Our limited experience with the subject does not allow us to give a correct answer</td>
</tr>
<tr>
<td>Croatia</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>No</td>
<td>No</td>
<td>These companies (with this operators) are more familiar with the filling a applications</td>
</tr>
<tr>
<td>Estonia</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Finland</td>
<td>No</td>
<td>No</td>
<td>A working group has been set up by the Ministry of the Environment to consider what advantages may arise from EMSs in permitting and supervisory procedures.</td>
</tr>
<tr>
<td>Germany</td>
<td>No</td>
<td>No</td>
<td>In general no, but see 4.1.2.</td>
</tr>
<tr>
<td>Greece</td>
<td>No</td>
<td>No</td>
<td>We can not refer to advantages, as the implementation of EMAS/ISO 14001 is mandatory to installations in the region of Attica according to Law 2965/2001. Regarding the rest of the country, there is no relation between the existence of EMAS/ISO 14001 and the permit procedure (it is used as background material).</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes</td>
<td>Yes</td>
<td>The operator is generally very aware of the environmental legislation that applies to them, they have complied much of the data necessary in an application and are well aware of environmental ‘aspects’ of their operations. In addition they have usually embarked on waste prevention and recycling programs. This makes their applications a better standard that others, and the operators are pre-sensitised to matters of concern to environmental regulators.</td>
</tr>
</tbody>
</table>
4.1.5 Are there any specific disadvantages of the operator’s EMAS or ISO 14001 system in the permit procedure concerning waste prevention, recovery and disposal?

<table>
<thead>
<tr>
<th>Country</th>
<th>EMAS</th>
<th>ISO 14001</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
<td>-</td>
<td>Our limited experience with the subject does not allow us to give a correct answer</td>
</tr>
<tr>
<td>Croatia</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Finland</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Greece</td>
<td>No</td>
<td>No</td>
<td>We can not refer to disadvantages, as the implementation of EMAS/ISO 14001 is mandatory to installations in the region of Attica according to Law 2965/2001. Regarding the rest of the country, there is no relation between the existence of EMAS/ISO 14001 and the permit procedure (it is used as background material).</td>
</tr>
<tr>
<td>Ireland</td>
<td>-</td>
<td>-</td>
<td>Not aware of any</td>
</tr>
<tr>
<td>Italy</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>No</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Yes</td>
<td>Yes</td>
<td>Tendency of operator to rely on the EMS for waste prevention measures, whereas specific waste prevention action plans are needed. EMS targets tend to be self generated by operator.</td>
</tr>
</tbody>
</table>

4.1.6 Does the operator’s EMAS environmental statement have a role in the permit procedure concerning waste prevention, recovery and disposal?

<table>
<thead>
<tr>
<th>Country</th>
<th>Yes or no</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
<td>Our limited experience with the subject does not allow us to give a correct answer</td>
</tr>
<tr>
<td>Croatia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Finland</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Greece</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>
ANNEX I

<table>
<thead>
<tr>
<th>Country</th>
<th>Yes or No</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ireland</td>
<td>No</td>
<td>It does no influence the decision on the permit, and such a statement will not be specifically identified in the permit. The permit may capture some of the objectives in the statement and stitch them into a schedule of Objective &amp; Targets specified in the permit. See also the guidance on completing an EMS in the Agency guidance document on Annual Reporting. See AER Guidance at <a href="http://www.epa.ie/licences/AER/aer3.htm">www.epa.ie/licences/AER/aer3.htm</a></td>
</tr>
<tr>
<td>Italy</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Yes</td>
<td>This may be referred to in the initial application determination</td>
</tr>
</tbody>
</table>

Comments:
Belgium: Our limited experience with the subject does not allow us to give a correct answer
UK: The Environment Agency for England and Wales is leading a pan European project that will consider the benefits of environmental management systems in the context of regulation. As such potential links such as those detailed above are under review. Further information on the Remas project can be obtained from www.remas.info

4.2 Other environmental management systems

4.2.1 Are there any other voluntary mechanisms or agreements for voluntary waste reduction plans?

<table>
<thead>
<tr>
<th>Country</th>
<th>Yes or No</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Belgium</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Croatia</td>
<td>Yes</td>
<td>Statements for members of Croatian Association of Sustainable Development</td>
</tr>
<tr>
<td>Cyprus</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>No</td>
<td>No in this area</td>
</tr>
<tr>
<td>Estonia</td>
<td>Yes</td>
<td>About 10 enterprises have voluntary cooperation agreements with the Minister for the Environment</td>
</tr>
<tr>
<td>Finland</td>
<td>Yes</td>
<td>E.g. the Responsible Care?</td>
</tr>
<tr>
<td>Germany</td>
<td>Yes</td>
<td>Examples: reduction plans for foundry sands, demolition waste, recycling paper</td>
</tr>
<tr>
<td>Greece</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes</td>
<td>Many large corporations have company-wide targets for prevention or reduction in waste. These are often included by the permit holder in the EMS established under the permit.</td>
</tr>
<tr>
<td>Italy</td>
<td>Yes</td>
<td>For some specific sector there are voluntary agreement</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>-</td>
<td>We do not fully understand the question. The waste conditions in a permit can be based upon the operator’s proposals</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>No</td>
<td>Under consideration</td>
</tr>
</tbody>
</table>
4.2.2 Do the other voluntary mechanisms or agreements have a role in the permit procedure concerning waste prevention, recovery and disposal?

<table>
<thead>
<tr>
<th>TABLE 56</th>
<th>Yes, part of the permit procedure</th>
<th>Yes, background material</th>
<th>No role</th>
<th>Other, please specify:</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Croatia</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>The role can be defined as the consultative</td>
</tr>
<tr>
<td>Cyprus</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Finland</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Greece</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ireland</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>May find their way into the permit conditions, particularly the EMS.</td>
</tr>
<tr>
<td>Italy</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Please see the question 4.2.1</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

4.2.3 Is there a mandatory environmental management system for the IPPC installations?

<table>
<thead>
<tr>
<th>TABLE 57</th>
<th>Yes or no</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Belgium</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Croatia</td>
<td>-</td>
<td>N/A</td>
</tr>
<tr>
<td>Cyprus</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Finland</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Greece</td>
<td>No</td>
<td>Overall no, but in a way yes, because, as mentioned before, the establishment of an EMS according to EMAS / ISO 14001 is referred as mandatory for the installations in the Attica region, according to Law 2965/2001.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes</td>
<td>See Condition 2 of permits at <a href="http://www.epa.ie/licences/lcldb/Set.htm">www.epa.ie/licences/lcldb/Set.htm</a></td>
</tr>
<tr>
<td>Italy</td>
<td>No</td>
<td>The competent authority is developing the issue.</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
4.2.4 Do the permit condition require an environmental management system for the IPPC installations?

<table>
<thead>
<tr>
<th>Country</th>
<th>Yes or no</th>
<th>Examples and Wordings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Belgium</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Croatia</td>
<td>No</td>
<td>N/A</td>
</tr>
<tr>
<td>Cyprus</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Finland</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Greece</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes</td>
<td>See Condition 2 of permits at <a href="http://www.epa.ie/licences/licdb/Set.htm">www.epa.ie/licences/licdb/Set.htm</a>. In particular I would refer to permits with Register Numbers above 400 which are more mature in their development. See also the guidance on preparing an EMS as contained in the EPA guidance on Annual Environmental Reporting on <a href="http://www.epa.ie/licences/AER/AERFinal.pdf">www.epa.ie/licences/AER/AERFinal.pdf</a></td>
</tr>
<tr>
<td>Italy</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>No</td>
<td>The conditions may specify more exactly how to measure an emission.</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Yes</td>
<td>In Scotland, operators may adopt a scheme of environmental management system but this is not required by permit conditions. The overriding requirement is that the operator can demonstrate suitable control over the operation to the Scottish Environment Protection Agency. It is up to the operator to decide how best to demonstrate this</td>
</tr>
</tbody>
</table>

4.2.5 If an environmental management system is mandatory, provide a copy of any permit condition requiring the implementation of the environmental management system

<table>
<thead>
<tr>
<th>Country</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>-</td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
</tr>
<tr>
<td>Croatia</td>
<td>N/A</td>
</tr>
<tr>
<td>Cyprus</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>-</td>
</tr>
<tr>
<td>Finland</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>In Germany, running of EMS is not mandatory.</td>
</tr>
<tr>
<td>Greece</td>
<td>-</td>
</tr>
</tbody>
</table>
Ireland  See answer to question 4.2.2.

Italy  -

Slovakia  -

Spain  -

Sweden  The mandatory system as described in 4.2.3 is regulated in the Ordinance (1998:901) on Operators’ Self Monitoring, not in the permits.

United Kingdom  Environment Agency for England and Wales - permit condition: ‘Without prejudice to the other conditions of this Permit, the Operator shall implement and maintain a management system, organisational structure and allocate resources that are sufficient to achieve compliance with the limits and conditions of this Permit.’

5 Monitoring, reporting and inspection

5.1 Monitoring and reporting of IPPC installations

5.1.1 Is there an obligatory monitoring system of waste prevention, recovery and disposal for the IPPC installations in your country?

<table>
<thead>
<tr>
<th>TABLE 60</th>
<th>Yes, own system</th>
<th>Yes, part of the IPPC monitoring system</th>
<th>No</th>
<th>Please, specify (e.g. if it is self-monitoring or monitoring carried out by the authorities):</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>x</td>
<td>x</td>
<td></td>
<td>Own system: Ordinance on Waste Recording and Reporting (Waste Accountability Ordinance): waste owners consecutively have to document waste streams (type, amount, origin and whereabouts of waste). Waste Management Concepts (also see 3.1.1.): has to be updated with every significant change of an installation (at least every 5 years). Part of the IPPC monitoring system: Due to Article 13 of IPPC Directive an operator is obliged to check his IPPC installation within a period of 10 years whether there have been substantial changes in State-of-the-art. In case there had been some he immediately has to make all necessary and economically feasible adaptions. Under certain circumstances the competent authority can enforce such adaptions prior to the 10 year deadline (section 81b of Trade and Industry Act 1994)</td>
</tr>
<tr>
<td>Belgium</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>The operator must make reports every year to the B.I.M. about emissions into water and air, and not about waste. The institutions that eliminate non hazardous waste has to send dates every three months to the Institute. The institutions that collect and eliminate hazardous waste has to send dates every month to the Institute. The producer of hazardous waste has to keep a register of waste produced. The inspectors can use this information to know the management of waste of a plant</td>
</tr>
<tr>
<td>Croatia</td>
<td>-</td>
<td>-</td>
<td></td>
<td>Law on Waste (Official Gazette 34/95) Article 18: A legal or natural person generating or handling waste shall keep the records containing information on the waste type and quantity, place of origin, storage, treatment and disposal methods and sites. Article 32: A legal or natural person generating or managing hazardous waste shall keep operating records containing information on hazardous waste type, quantity, place of origin, storage, treatment and permanent disposal methods and sites.</td>
</tr>
<tr>
<td>Cyprus</td>
<td>-</td>
<td>x</td>
<td></td>
<td>Self-monitoring</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
<td>x</td>
<td></td>
<td>Self-monitoring</td>
</tr>
</tbody>
</table>
### ANNEX I

<table>
<thead>
<tr>
<th>Country</th>
<th>Self-Monitoring</th>
<th>Other Monitoring</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estonia</td>
<td>x</td>
<td>-</td>
<td>It is only self-monitoring. IPPC Act § 34: (2) An operator shall provide the issuer of permits with information: 1) obtained in the process of monitoring prescribed by the permit, in compliance with the requirements of the permit; 2) concerning each accident which has a significant impact on the environment or human health, which shall be forwarded immediately; 3) concerning every change in the nature or functioning of an installation which might affect the environment; 4) concerning the proposed change of operator.</td>
</tr>
<tr>
<td>Finland</td>
<td>-</td>
<td>x</td>
<td>It is self-monitoring. Also important operation for ensuring the operators compliance in Finland is the procedure where the competent authority assesses the monitoring programme and accepts the plan for follow-ups and measurements during the permit procedure.</td>
</tr>
<tr>
<td>Germany</td>
<td>x</td>
<td>-</td>
<td>Ordinance on monitoring of waste flows; ordinance on concepts and balances.</td>
</tr>
<tr>
<td>Greece</td>
<td>x</td>
<td>-</td>
<td>All industrial facilities are required to report the quantities of solid and hazardous waste generated in their facilities to the competent authorities.</td>
</tr>
<tr>
<td>Ireland</td>
<td>-</td>
<td>x</td>
<td>Self. With occasional verification audits or monitoring by enforcing authority (EPA).</td>
</tr>
<tr>
<td>Italy</td>
<td>-</td>
<td>x</td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
<td>-</td>
<td>x</td>
<td>It can be both.</td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>x</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>x</td>
<td>-</td>
<td>Own system is a self-monitoring system (internal control system) which is mandatory. Self-monitoring is a part of the monitoring system related to IPPC.</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>-</td>
<td>x</td>
<td>Operator undertakes monitoring of the installation and submits data. The regulator audits systems.</td>
</tr>
</tbody>
</table>

#### 5.1.2 How often is the monitoring of the waste issues carried out?

<table>
<thead>
<tr>
<th>Country</th>
<th>Continuously</th>
<th>Monthly</th>
<th>Annually</th>
<th>Other frequency; please, specify:</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Inspection intervals depend on type of installation and permit conditions (sector/industry specific)</td>
<td>-</td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>If necessary during the inspection of a plant, the information collected by the waste registers are examined.</td>
<td>In the questionnaire that was sent to the IPPC companies, the companies must answer the following questions about waste substances?</td>
</tr>
<tr>
<td>Croatia</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>The information referred to in the paragraph 1 of the Article 18 concerning municipal waste management are quarterly submitted, on a prescribed form, to the town or municipal authority in charge of environmental protection.²</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>Calculations of disposed waste are reported after each three months period for pollution charge system</td>
<td>-</td>
</tr>
<tr>
<td>Finland</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>We are not sure what kind of monitoring it is question about.</td>
</tr>
<tr>
<td>Country</td>
<td>X</td>
<td>-</td>
<td>-</td>
<td>Notes</td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>---</td>
<td>---</td>
<td>---</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td></td>
<td></td>
<td></td>
<td>The operator has to establish balances annually, to update his concept every five years (for wastes requiring supervision and wastes requiring special supervision). Upon request concepts and waste balances have to be submitted to the competent authority.</td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td></td>
<td></td>
<td></td>
<td>Usually unannounced.</td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>x</td>
<td></td>
<td></td>
<td>And as may be necessary when hazardous waste is consigned off-site.</td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td></td>
<td>x</td>
<td></td>
<td>Sector specific</td>
<td></td>
</tr>
<tr>
<td>Slovakia</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td></td>
<td></td>
<td></td>
<td>Depending on the installation can be one of the above</td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td></td>
<td></td>
<td>x</td>
<td>The frequency may be regulated in the permit or is a documented routine in the self-monitoring system (internal control system). If needed the authority may issue an injunction concerning monitoring or specify demands in a condition of the permit. Waste issues must be reported in the annual environmental report, which is a legal requirement.</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td></td>
<td></td>
<td></td>
<td>As at inspection frequency or more frequently if required. See 5.2.1 for details.</td>
<td></td>
</tr>
</tbody>
</table>

1. Were measures introduced for monitoring, controlling and analysing the consumption of materials and products generating waste? Were measures introduced for monitoring, controlling and analysing waste production? Do the technological decisions implemented promote waste prevention? Do current procurement choices help to prevent waste? Is machinery tuned and maintained in a way that optimises prevention? Is behaviour that promotes lower consumption encouraged? Is waste sorting encouraged? Are the disposal streams followed by waste and products appropriate? Is it possible to draw up a report on the efficient prevention of waste production (both quantitative and qualitative prevention)?

2. Information under paragraph 1 of the Article 32 concerning the hazardous waste management are quarterly submitted, on a prescribed form, to the County office or the Greater Zagreb office in charge of environmental protection. According to Rule Book on Environmental Emission Inventory (Official Gazette 36/96) the operator must submit the different data relevant to environmental issues once per year.
### 5.1.3 What parameters are monitored?

**TABLE 62**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Austria</th>
<th>Belgium</th>
<th>Croatia</th>
<th>Cyprus</th>
<th>Czech Rep.</th>
<th>Estonia</th>
<th>Finland</th>
<th>Germany</th>
<th>Greece</th>
<th>Ireland</th>
<th>Italy</th>
<th>Slovakia</th>
<th>Spain</th>
<th>Sweden</th>
<th>United Kingdom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of raw and auxiliary materials</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Use of fuels</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Fuel quality</td>
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<td>-</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Use of energy</td>
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<td>x</td>
<td>x</td>
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<td>Water consumption</td>
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<td>x</td>
<td>x</td>
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<td>x</td>
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<td>x</td>
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<tr>
<td>Reuse of water</td>
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<td>x</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Use of chemicals</td>
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<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<td>x</td>
<td>x</td>
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<td></td>
</tr>
<tr>
<td>Use of hazardous substances</td>
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<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<td></td>
</tr>
<tr>
<td>Process optimisation</td>
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<td>x</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<td></td>
</tr>
<tr>
<td>Substituting chemicals with less harmful substances</td>
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<td>x</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>x</td>
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<td>x</td>
<td>x</td>
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<td></td>
</tr>
<tr>
<td>Amount and quality of packaging materials</td>
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<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>x</td>
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<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<td></td>
</tr>
<tr>
<td>Minimisation of the use of disposable products</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>x</td>
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<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal recycling of waste/by-products generated by the applicant</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internal energy recovery of waste/by-products generated by the applicant</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accidents and incidents</td>
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<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total amount of generated non-hazardous waste</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total amount of generated hazardous waste</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<td>x</td>
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<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waste amount per production unit</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
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<td>x</td>
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<td>x</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waste quality and characteristic</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Origin of waste</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage of waste</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation of waste</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<td></td>
</tr>
<tr>
<td>Disposal site</td>
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<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other; please, specify:</td>
<td>At present only little experience about inspections of IPPC installations exists. Due to Article 13 IPPC Directive first inspections have to be carried out until 2007.</td>
<td>-</td>
<td>According to Rule Book on Environmental Emission Inventory (official gazette 36/96)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Depends partly on Länder legislation</td>
<td>-</td>
<td>Landfill Directive Requirement (meteorology etc)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please, specify all parameters used:</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 England and Wales only
2 Scotland only
3 England and Wales only
4 England and Wales only
5 Scotland only
6 These inspections include a check of waste documentation obligations as listed in the Waste Framework Directive and the Directive on Hazardous Waste. In case a permit includes more parameters than listed above, these are also checked.
7 The operator must submit the different data relevant to environmental issues once per year
8 Incineration Directive requirements, Amount of Waste Recovered on-site, Amount of waste recovered off-site, amount of waste disposed on-site, amount of waste disposed off-site, on-site waste treatment, TFS consignments, Rejected consignments. EPER substances in waste on Annual Environmental Report for information on EPER completion. Also in relation to packaging waste the quality and amount is separately monitored and reported to Repak (see reference in question 2.2.2). It is included with general waste data in reports to the EPA.
5.1.4 Is there an obligatory reporting system (for consideration and verification installations by self-monitoring) of waste prevention, recovery and disposal in your country?

<table>
<thead>
<tr>
<th>TABLE 63</th>
<th>Yes, own system</th>
<th>Yes, part of the IPPC monitoring system</th>
<th>No</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>If in case of operator self-monitoring (see 5.1.1.) shortcomings are uncovered and certain adaptions of an installation have to be made to reach state-of-the-art level, a report describing all measures taken has to be submitted to the competent authority.</td>
</tr>
<tr>
<td>Belgium</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>The institutions that eliminate non hazardous waste has to send dates every three months to the Institute. The institutions that collect and eliminate hazardous waste has to send dates every month to the Institute. The producer of hazardous waste has to keep a register of waste produced. The inspectors can use this information to know the management of waste of a plant.</td>
</tr>
<tr>
<td>Croatia</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>To fill in forms (keeping records) that describe the whole procedures of waste management. The copies of these forms are sent to the Ministry of Agriculture, Natural Resources and Environment</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
| Estonia  | x               | -                                      | -  | Waste Act: § 45. Waste reporting  
(1) The persons specified in subsection 44 (2) of this Act shall submit reports on their waste-related activities to the environmental authority at least once a year for entry into the waste register. The format and the procedure for submission of the report shall be established by the Minister of the Environment.  
(3) The Ministry of the Environment and environmental supervision agencies have the right to obtain information concerning products produced in Estonia or imported into Estonia, substances used in their manufacture, waste generated upon their production and the handling of the waste from the producers or importers of the products and other state or local government agencies.  
(4) Waste-related statistical observations shall be organised pursuant to the procedure provided in the Official Statistics Act.  
§ 46. State register of waste  
(1) The state register of waste is a database where information concerning the type, quantity and origin of the waste generated and managed in Estonia, persons operating in the area of waste handling, waste management facilities intended for waste disposal, waste permits and hazardous waste handling licences and transboundary movements of waste is compiled.  
(2) The state register of waste consists of the central register, the chief processor of which is the Ministry of the Environment, and of county sub-registers which are administered by environmental authorities.  
(3) The Government of the Republic shall establish the state register of waste pursuant to the procedure provided by the Databases Act.  
(4) The procedure for forwarding information subject to international notification shall be established by a regulation of the Government of the Republic. |
| Finland  | -               | x                                      | -  | As part of the environmental permits, the authorities stipulate in Finland how an operator has to monitor emissions and report the results. In large installations, compliance monitoring focuses heavily on the quality and operation of self-monitoring and reporting systems as well as on the assessment report produced by the operator. In the case of medium-sized and small installation sites, inspections concentrate more on assessing the overall compliance of the operation. |
| Germany  | x               | -                                      | -  | According to regulations quoted in 5.1.1 |
| Greece   | x               | -                                      | -  | All industrial facilities are required to report the quantities of solid and hazardous waste generated in their facilities to the competent authorities. |
| Ireland  | -               | x                                      | -  | - |
| Italy    | -               | x                                      | -  | - |
| Slovakia | x               | -                                      | -  | - |
Every operator pursuant to permitting must according to legislative requests annually submit an environmental report to the authorities.

Self monitoring data submitted to regulator.

### 5.1.5 Do you have an electronic reporting system in use in your country?

<table>
<thead>
<tr>
<th>Table 64</th>
<th>Yes or no</th>
<th>Please, provide details on your system:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Yes and no</td>
<td>Electronic reporting system — not focused on waste data but emissions into air and water, noise etc. (EPER).</td>
</tr>
<tr>
<td>Belgium</td>
<td>Yes</td>
<td>The information concerning emissions into the air and water by IPPC companies must be submitted by means of a registered letter or with the aid of electronic data transfer.</td>
</tr>
<tr>
<td>Croatia</td>
<td>Yes</td>
<td>By-law on Environmental Information System (Official Gazette 74/99). The information system includes: data collected and processed in accordance with the law as referred to in Article 3 above and with other regulations, especially data from the Environmental Pollution Cadastre; monitoring records etc.; expert and scientific data by local, foreign and international institutions, methodological and documentation-related environmental data; legal texts and texts of other regulations related to the field of environmental protection; environmental state reports; and environmental policy measures, programmes and plans.</td>
</tr>
<tr>
<td>Cyprus</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Yes</td>
<td>It is only one option of reporting.</td>
</tr>
<tr>
<td>Estonia</td>
<td>Yes</td>
<td>Both - electronic or handwritten report in unified form is allowed and demanded</td>
</tr>
<tr>
<td>Finland</td>
<td>Yes</td>
<td>The electronic control and reporting system VAHTI is in use. In the future all of the IPPC installations are reporting the data to the inspection authorities electronically and the information is saved to the electronic VAHTI information (permitting and supervision) system.</td>
</tr>
<tr>
<td>Germany</td>
<td>Yes</td>
<td>Systems of the environmental authorities: General data on installations and inspections: AISI or specific Länder system LAGA ASYS, electronic control and reporting system for wastes requiring special supervision in IPPC installations. The system only delivers information on one part of the whole amount of wastes.</td>
</tr>
<tr>
<td>Greece</td>
<td>No</td>
<td>Generally no, with the exception of the electronic reporting system under the EPER.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes</td>
<td>See tables on waste production in EPA guidance on Annual Environmental Reporting. These are submitted electronically for automated interrogation. <a href="http://www.epa.ie/licences/AER/aer3.htm">www.epa.ie/licences/AER/aer3.htm</a></td>
</tr>
<tr>
<td>Italy</td>
<td>Yes</td>
<td>Most waste producers and all those who manage waste are obliged to report yearly, to the National Waste Inventory, about managed waste quantities and categories. Waste information system is based on the National Waste Inventory which was first established by law in 1994 and reorganised in 1998; the Inventory has its headquarters at APAT and regional seats at ARPA s (the Regional Environmental Protection Agencies). All subjects involved in waste cycle (from production to disposal), especially hazardous waste, shall report, every year, data about produced/managed waste by means of a compulsory questionnaire (MUD). Waste categories are reported according to the European Waste List (EWL). National Inventory of Waste is actually to be considered as an implementation tool of the Regulation 2150/2002/EC on waste statistics.</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>Yes and No</td>
<td>We develop such a system to make it possible for the operator to report. The regional and local authorities already report data to the Swedish Environmental Protection Agency by such a system.</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Yes</td>
<td>England and Wales only.</td>
</tr>
</tbody>
</table>
5.1.6 To whom are the monitoring data reported?

<table>
<thead>
<tr>
<th>TABLE 65</th>
<th>Inspection authority</th>
<th>Ministry or agency</th>
<th>EU</th>
<th>Other; please, specify to whom:</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Belgium</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Croatia</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>County offices</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>First to the local authorities and than to the Ministry of the Environment</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>Data is reported to the Environment Ministries County Departments</td>
</tr>
<tr>
<td>Finland</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>Waste data: most of the Länder have their own special waste agency, e.g. Baden Württemberg SAA; The agencies are special registration agencies and advisory bodies especially for wastes requiring special supervision (see 3.1.2)</td>
<td>-</td>
</tr>
<tr>
<td>Greece</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>Depends on the kind of data and who or under which legislation has been requested.</td>
</tr>
<tr>
<td>Ireland</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Inspection Authority is the EPA</td>
</tr>
<tr>
<td>Italy</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>Data are reported to the Agency for the Protection of the Environment and for Technical services (APAT)</td>
</tr>
<tr>
<td>Slovakia</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>District Environmental Offices</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Available to the public</td>
<td>The operator report to the inspection authority which report to the Environmental Protection Agency. The Environmental Protection Agency reports to the EU.</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

5.1.7 Which organisation reports the monitoring data to the EU?

<table>
<thead>
<tr>
<th>TABLE 66</th>
<th>Inspection authority</th>
<th>Ministry or agency</th>
<th>Other; please, specify:</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>Federal Ministry of Agriculture, Forestry, Environment and Water Management — Department V/I report to European Commission; statistical data regarding hazardous waste is provided to Eurostat and EEA Copenhagen by Federal Environment Agency (Topic Center Waste)</td>
</tr>
<tr>
<td>Belgium</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Croatia</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>-</td>
<td>-</td>
<td>Information Centre of the Ministry for the Environment</td>
<td>-</td>
</tr>
</tbody>
</table>
### Annex I

<table>
<thead>
<tr>
<th>Country</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

**Finland**

- Yes
- No

**Germany**

- Yes
- No

The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety reports all data required by the EU.

**Greece**

- Yes
- No

Ministry for the Environment Physical Planning and Public Works (Central Authority)

**Ireland**

- Yes
- No

EPA is the inspection authority

**Italy**

- Yes
- No

**Slovakia**

- Yes
- No

**Spain**

- Yes
- No

**Sweden**

- Yes
- No

The Swedish Environmental Protection Agency

**United Kingdom**

- Yes
- No

Comments:

**Estonia:** County Environmental Departments collect and control data reports and handle them over to the Information Centre, which compiles total annual report.

### 5.2 Inspection and enforcement

#### 5.2.1 Do you have inspection plans for inspecting waste prevention, recovery and disposal in installations?

<table>
<thead>
<tr>
<th>Table 67</th>
<th>Yes, combined with other inspection issues</th>
<th>Yes, for waste issues separately</th>
<th>No</th>
<th>Please, specify how the waste issues are dealt within the inspection plans:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>The environmental inspection program also covers IPPC installations. At the moment 4 (out of 9) regions have an inspection program.</td>
</tr>
<tr>
<td>Belgium</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Croatia</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Cyprus</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>We have started annually inspections for examining if the conditions of permits are kept.</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Estonia</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>During the installation inspections, many issues are controlled, as safety, waste and wastewater.</td>
</tr>
<tr>
<td>Slovakia</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>Inspection plans are mandatory according to legislative request.</td>
</tr>
</tbody>
</table>
Regulators are moving to a risk based approach and have their own plans and procedures. There is no uniform approach to the inspection of waste issues, although in general an audit based approach is adopted in order to ensure compliance with the permit and the adoption of BAT.

In England and Wales, installations are, on the whole, inspected 4 times a year. Information on the Environment Agency’s approach to compliance inspection can be found at: www.environment-agency.gov.uk/business/444217/444661/444671/?version=1&lang=_e

5.2.2 What inspection activities do you carry out for inspecting waste prevention, recovery and disposal?

<table>
<thead>
<tr>
<th>Country</th>
<th>Site visits</th>
<th>Monitoring achievement of environmental quality standards</th>
<th>Consideration of environmental audit reports and statements</th>
<th>Consideration and verification of self-monitoring carried out by or on behalf of operators of controlled installation</th>
<th>Assessing the activities and operations carried out at the controlled installation</th>
<th>Checking the premises at the site</th>
<th>Checking the relevant equipment at the site</th>
<th>Other; please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>As far as permit conditions necessitate further inspections than listed above, these also are carried out.</td>
</tr>
<tr>
<td>Belgium</td>
<td>x x x x x x x x x x</td>
<td>Site visits + inspection of compliance with operating conditions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Croatia</td>
<td>x x x x x x x x x x x x x x x x x x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>x x x x x x x x x x</td>
<td>Site visits: by industrial inspection authorities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td>x - x x x x x x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>x x x x x x x x x x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Finland</td>
<td>x - x x x x x x x x</td>
<td>Site visits: by industrial inspection authorities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>x x x x x x x x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Greece</td>
<td>x x x x x x x x x x</td>
<td>Site visits: by industrial inspection authorities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>x x x x x x x x x x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Italy</td>
<td>x - x x x x x x x x</td>
<td>Integrity of waste storage areas; waste stability for landfills; Impoundment wall stability for lagoons; TFS documentation; Waste segregation; Emissions management. Also independent EPA verification (of self monitoring) monitoring is undertaken.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slovakia</td>
<td>x - - - - x x x x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
5.2.3 How often do you carry out regular (routine) site visits including inspecting waste prevention, recovery and disposal in IPPC installations?

<table>
<thead>
<tr>
<th>Country</th>
<th>Quarterly</th>
<th>Twice a year</th>
<th>Annually</th>
<th>Other frequency, please, specify:</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Depends on type and size of an installation. For certain IPPC sectors in some provinces an annual inspection program exists.</td>
<td>-</td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>At least once a year.</td>
<td>The internal procedures of the Institute include an annual inspection of IPPC cases and are therefore in compliance with the EU’s minimum inspection requirements. The Institute is assisted by an external consultancy in setting these rules. Consequently, this is an internal undertaking by the appropriate authority that is reflected in the Institute’s annual work programme, which is approved every year by the competent government Ministry.</td>
</tr>
<tr>
<td>Croatia</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>It is possible to say it so accurate. The Czech Environmental Inspectorate carry out site visits including the whole waste management so every enterprise is checked approximately every year. The site visits only in IPPC installations will start next year (2004).</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Finland</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Depends on type and size of installations, e.g. Seveso II and IPPC installation annually, other IPPC-installations once in two years etc. There is a difference between regularly inspection according to inspection plans and inspections on occasion (routine and non-routine inspections).</td>
<td>Depends on inspection plans of the Länder, site activities, amount of hazardous wastes</td>
</tr>
<tr>
<td>Greece</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Usually unannounced</td>
<td>Inspections are carried out unannounced or announced, in cases of routine visits or unannounced in cases of complaints.</td>
</tr>
<tr>
<td>Ireland</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>The frequency of inspection is influenced my many factors. E.g. complexity of operation, compliance history, public complaints, risk, incidents, etc.. The frequency can vary from one site inspection per year for simple low risk operations to 12 or more visits per year for complex sites where operational practices are poor.</td>
<td>-</td>
</tr>
<tr>
<td>Italy</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Sector specific</td>
<td>-</td>
</tr>
</tbody>
</table>
ANNEX I

<table>
<thead>
<tr>
<th>Country</th>
<th>Frequency</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slovakia</td>
<td>- - - -</td>
<td>No visits yet, IPPC Department was established on August 1, 2003. Waste Department performed site visits (until now) in IPPC installations app. once a five years.</td>
</tr>
<tr>
<td>Spain</td>
<td>- - - -</td>
<td>We have been doing site visits since 2000 to get information and data on the IPPC installations, but the frequency can be any of those above depending on the site and what politicians want.</td>
</tr>
<tr>
<td>Sweden</td>
<td>- - - -</td>
<td>According to the inspection plan The inspections are more or less frequent. It depends on the need</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>- - -</td>
<td>In England and Wales, the standard frequency for IPPC installations is quarterly, but inspection interval may be adjusted by assessment of operator performance and risk. See web link in section 4.1.3. In Scotland, inspection frequencies depend on type of installation and outcome of risk assessment but as a minimum at least twice per year an up to 12 times per year (and some site may warrant further inspection).</td>
</tr>
</tbody>
</table>

5.2.4 Is there any written guidance on how often inspections covering waste issues should be carried out?

<table>
<thead>
<tr>
<th>Country</th>
<th>Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>No</td>
</tr>
<tr>
<td>Belgium</td>
<td>No</td>
</tr>
<tr>
<td>Croatia</td>
<td>No</td>
</tr>
<tr>
<td>Cyprus</td>
<td>No § 18 (act no. 76/2002 Coll. On IPPC); Control - (1) In cooperation with the relevant public health authorities and the Agency, the Authority shall carry out controls at least once every 8 years to ensure that there has been no change in the circumstances that could lead to a change in the integrated permit</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>No § 18 (act no. 76/2002 Coll. On IPPC); Control - (1) In cooperation with the relevant public health authorities and the Agency, the Authority shall carry out controls at least once every 8 years to ensure that there has been no change in the circumstances that could lead to a change in the integrated permit</td>
</tr>
<tr>
<td>Estonia</td>
<td>Yes § 36 Supervision: (1) The Environmental Inspectorate shall inspect the compliance of installations and their activities with the requirements established by permits at least once a year.</td>
</tr>
<tr>
<td>Finland</td>
<td>No</td>
</tr>
<tr>
<td>Germany</td>
<td>Yes Some Länder have inspection planning guidelines</td>
</tr>
<tr>
<td>Greece</td>
<td>No At the moment no, because the Inspection Authority is recently in charge.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes/No The only dedicated ‘waste’ inspections are for those ‘Merchant’ waste operations like those identified in Category 5 of the IPPC Directive which are not associated with another category. There are dedicated inspections once every two years of the retaining walls of mining was facilities and other large lagoon structures: this assessment being carried out by a specialist dam engineer retained by the Agency and charged to the permit holders. Though the Enforcement section of the EPA who do the inspections do have an Enforcement Plan which identifies the planned inspections and audits for the year ahead. The frequencies are influenced by the sector and the site specific issues identified in question 5.2.3.</td>
</tr>
<tr>
<td>Italy</td>
<td>No</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No</td>
</tr>
<tr>
<td>Spain</td>
<td>No</td>
</tr>
<tr>
<td>Sweden</td>
<td>No The inspecting authorities plan their activities by them selves. The central guidance specify that the frequency shall take notice of the operators impact on the environment, environmental quality objectives and the quality of the self-monitoring system (internal control system) by showing results of compliance</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Yes For example SEPA risk assessment manual with minimum frequency of inspection and maximum determined by site performance.</td>
</tr>
</tbody>
</table>
5.2.5 How are the waste issues dealt with during the site visits?

<table>
<thead>
<tr>
<th>Country</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>See 5.2.2</td>
</tr>
<tr>
<td>Belgium</td>
<td>Checked for compliance of the operating conditions + inspection of the wastes register</td>
</tr>
<tr>
<td>Croatia</td>
<td>On site inspection visit on waste issues is done according to the relevant Law on Waste and its By-Low and Rules, using the appropriate check lists, which are done depending on industrial facilities</td>
</tr>
<tr>
<td>Cyprus</td>
<td>By examining production procedures, records, impacts upon environment/human health, and take samples for chemical analyses</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>-</td>
</tr>
<tr>
<td>Finland</td>
<td>See 5.2.2</td>
</tr>
<tr>
<td>Germany</td>
<td>Part of the scope of the inspection, see 5.2.2</td>
</tr>
<tr>
<td>Greece</td>
<td>-</td>
</tr>
<tr>
<td>Ireland</td>
<td>Similar to any other emissions related matter. Records of where waste went and who took it are given careful scrutiny because of the illegal waste trade.</td>
</tr>
<tr>
<td>Italy</td>
<td>The question is not clear, please supply some further indication</td>
</tr>
<tr>
<td>Slovakia</td>
<td>Waste Department of the Slovak Inspectorate of the Environment has elaborated several guidelines for site visits - depending the waste issues that shall be subject to control e.g. reporting the data, shipment of waste, trans-boundary shipment of waste, handling with the waste, handling with the hazardous waste, disposing the waste, recovery of the waste</td>
</tr>
<tr>
<td>Spain</td>
<td>We have to follow the legislation and the permit</td>
</tr>
<tr>
<td>Sweden</td>
<td>It depends on why the visit is conducted. The authority may focus on the results, the measures taken by the operator or on deficiencies in the self-monitoring (internal control) system to avoid a problem in the future or to improve the work already done or on a combination of these aspects</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>As part of routine inspection against permit conditions.</td>
</tr>
</tbody>
</table>

5.2.6 Are there “joint inspections” (inspections together with competent inspectors and auditors of voluntary environmental management systems) arranged in your country?

<table>
<thead>
<tr>
<th>Country</th>
<th>Yes or no</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Belgium</td>
<td>Yes</td>
<td>When an plant is a candidate for an eco-label, the authorities are consulting the auditors.</td>
</tr>
<tr>
<td>Croatia</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>No</td>
<td>Not yet</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Yes</td>
<td>See 5.2.4</td>
</tr>
<tr>
<td>Estonia</td>
<td>Yes</td>
<td>Environmental Inspectorate together with County Environmental Department (the permitting authority) and representative of municipal authority.</td>
</tr>
<tr>
<td>Finland</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Greece</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Ireland</td>
<td>No</td>
<td>National law permits Local and Municipal Authorities to inspect any IPPC site for the purposes of environmental protection in their area. Though in practice these inspections are rare.</td>
</tr>
<tr>
<td>Italy</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>
5.2.7 Is there some co-operation between inspection authorities and prosecution or police authorities concerning waste prevention, recovery and disposal?

<table>
<thead>
<tr>
<th>Table 73</th>
<th>Yes or no</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Yes</td>
<td>In case of obvious criminal offences, competent authorities have to report to police and/or general prosecutor.</td>
</tr>
<tr>
<td>Belgium</td>
<td>Yes</td>
<td>If necessary.</td>
</tr>
<tr>
<td>Croatia</td>
<td>Yes</td>
<td>State or Local Public Prosecutor and Police authorities</td>
</tr>
<tr>
<td>Cyprus</td>
<td>No</td>
<td>But it is allowed according to the Law</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
<td>Not yet</td>
</tr>
<tr>
<td>Estonia</td>
<td>No</td>
<td>Environmental Inspectorate has the prosecution task, police can be involved if there are specific problems with discipline.</td>
</tr>
<tr>
<td>Finland</td>
<td>Yes</td>
<td>Arranging the courses on environmental offences but not only concerning the waste issues. The courses are arranged for environmental authorities, the key prosecutors in environmental offences and representatives of police. The Finnish national group for the monitoring of environmental offences publishing the annual report of environmental offences in Finland and developing co-operation between various supervisory authorities.</td>
</tr>
<tr>
<td>Germany</td>
<td>Yes</td>
<td>E.g. in the case of criminal investigations, preliminary proceedings.</td>
</tr>
<tr>
<td>Greece</td>
<td>No</td>
<td>Only in rare cases.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes</td>
<td>The inspection authority is the prosecuting authority except for major (indictable offences). These are handled by the police and advised by inspection authority</td>
</tr>
<tr>
<td>Italy</td>
<td>Yes</td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
<td>Yes</td>
<td>If necessary, yes. Especially when there is a suspicion of the crime</td>
</tr>
<tr>
<td>Spain</td>
<td>Yes</td>
<td>They co-operate with us investigating and trying to find out who are the infractors in that field.</td>
</tr>
<tr>
<td>Sweden</td>
<td>Yes</td>
<td>The inspection authorities are according to legislative requests obliged to notify the police if a permit are violated. They have routines for the cooperation when it is needed. Before that situation the inspection authorities work by themselves</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Yes</td>
<td>Depends on the circumstances. Serious offences and those involving organised criminal activity more likely to involve the police. Governed by inspection authority’s policy and procedures.</td>
</tr>
</tbody>
</table>
5.2.8 What should be included in the inspection report concerning waste prevention, recovery and disposal?

<table>
<thead>
<tr>
<th>Waste issues; please, specify:</th>
<th>Overview of compliance</th>
<th>Actions taken</th>
<th>Further actions</th>
<th>Further site visits</th>
<th>Other; please, specify:</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Austria</strong></td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>See 5.2.1. and 5.2.2. Furthermore details about type and size of the installation and type, amount, origin and whereabouts of waste should be listed in the report.</td>
</tr>
<tr>
<td><strong>Belgium</strong></td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Croatia</strong></td>
<td>Detail inspection report</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Cyprus</strong></td>
<td>The management (collection, transfer, reuse, recycle, recover)</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Czech Republic</strong></td>
<td>Total amount of waste (also hazardous), appropriate permits (with the dates), origin of waste, character of waste, transportation of waste, disposal of waste, shipping documents</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>Further site visits only seldom</td>
</tr>
<tr>
<td><strong>Estonia</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>The obligation of inspection reports is not enforced yet</td>
</tr>
<tr>
<td><strong>Finland</strong></td>
<td>At least amount of waste, the quality of waste and how waste is stored and comparison with former years.</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td><strong>Germany</strong></td>
<td>E.g. kind of waste, quantity, quality, origin of waste, storage of waste.</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Greece</strong></td>
<td>Quantity, quality, origin of waste, licence for disposal.</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Ireland</strong></td>
<td>Storage, records, segregation (hazardous &amp; non-hazardous), accidents, progress on EPM Objectives &amp; Targets, bunding, labelling of waste for export, certificated of final disposal/recovery for off-site management of hazardous waste...</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td><strong>Italy</strong></td>
<td>Waste production and waste management</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>
### 5.2.9 Are the inspection reports available?

TABLE 75

<table>
<thead>
<tr>
<th>Country</th>
<th>Public as a whole</th>
<th>Partly public</th>
<th>Declared as confidential</th>
<th>Other; please, specify:</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>Inspection reports placed on working file, but the undertaken actions can be consulted.</td>
</tr>
<tr>
<td>Croatia</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Cyprus</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>It is the background for the possible “administrative procedure”, so it is not available for public, only for the participants in the procedure</td>
</tr>
<tr>
<td>Estonia</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>No inspection reports, IPPC Act § 36: (2) The Environmental Inspectorate shall forward the inspection results to the issuer of permits, corresponding operator and register of integrated environmental permits within fourteen calendar days after the inspection.</td>
</tr>
<tr>
<td>Finland</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>On demand according to the Environmental Information Act.</td>
</tr>
<tr>
<td>Greece</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Inspections reports are available to other public authorities.</td>
</tr>
<tr>
<td>Ireland</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Slovakia</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Only when public ask for</td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>Inspection reports placed on working file but any actions — variations, enforcement actions etc are placed on public register.</td>
</tr>
</tbody>
</table>

1 England and Wales only
5.2.10 What kind of enforcement action is taken if the permit conditions are not fulfilled?

<table>
<thead>
<tr>
<th>TABLE 76</th>
<th>Enforcement notice</th>
<th>Change of the permit (conditions)</th>
<th>Fines or penalties (damages)</th>
<th>Compensation of damages</th>
<th>Revocation of the permit</th>
<th>Interruption of the operation</th>
<th>Criminal sanctions</th>
<th>Other; please, specify</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>The competent authority may impose administrative orders to force operators to fulfill permit requirements. In case of ongoing noncompliance the authority may take all necessary measures at operator’s expenses.</td>
</tr>
<tr>
<td>Belgium</td>
<td>x x x x x x x x x x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Croatia</td>
<td>x x x x x x x x x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>x x x - - - x x x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Amendment of permit conditions</td>
</tr>
<tr>
<td>Finland</td>
<td>x x x x x x x x x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>Most of these actions are very uncommon and mainly only the first, the second are in use when it’s question about waste issues.</td>
</tr>
<tr>
<td>Germany</td>
<td>x x x x x x x x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Decommissioning and dismantling (possible but very uncommon). See 5.2.7</td>
</tr>
<tr>
<td>Greece</td>
<td>x x x -</td>
<td>In serious cases</td>
<td>Temporarily, in serious cases</td>
<td>Depends on the seriousness of incident</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ireland</td>
<td>x x x -</td>
<td>x x x</td>
<td>x</td>
<td>x</td>
<td>In cases of an incident or illegal activity, the Inspection authority can carry out its own investigation or emergency remedial works and recharge costs to permit holder.</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Italy</td>
<td>- -</td>
<td>x</td>
<td>-</td>
<td>x x x</td>
<td>-</td>
<td>Different sanctions are taken depending the gravity of the infraction (even criminal sanctions in the case of hazardous waste)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Country</td>
<td>Action 1</td>
<td>Action 2</td>
<td>Action 3</td>
<td>Action 4</td>
<td>Action 5</td>
<td>Other Actions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
<td>---------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slovakia</td>
<td>x x x x x x x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>x x x x x x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>The first thing it is an enforcement notice but there can be any other of those actions. The green police can too directly to Criminal actions.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sweden</td>
<td>x - x - x x</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Closing of the installation The inspection authority issues an injunction concerning measures that shall be taken or concerning interruption of the operation. They can combine an injunction with an administrative fine and are obliged to notify the prosecutor if a condition or a permit is violated</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Kingdom</td>
<td>x x x [x]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Formal warning letters May include any of the above. Depends on the circumstances and risk to the environment. Actions are taken in accordance with enforcement &amp; prosecution policies of inspection authority</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 England and Wales only

**Comments:**

**Belgium:** Infringements of environmental regulations are sanctioned under criminal law. Furthermore, the Ordinance of 25 March 1999 as above, authorises the Institute to take the following action: to take the measures necessary to avoid, reduce or remedy the hazards or contamination endangering the environment and human health; to order the closure of an installation or partially or completely halt activities in the presence of a risk of irreparable damage or in the case of persistent infringement; to initiate infringement proceedings, which shall prevail unless contrary proof is provided and submitted to the prosecutor; to impose administrative fines for infringements that have been entered in infringement proceedings but that the prosecutor’s office has not acted against.

**Czech Republic:** Change of the permit = the Authority require that the operator of the installation submit a request for a change in the integrated permit within an appropriate deadline set by the Authority, where it may lay down the requisites that are not required in the content of the application.

**Estonia:** IPPC Act: § 37. Violation of duties imposed or requirements established by permit. A legal person who operates without a permit in a category of activity for which a permit is required, or violates the requirements of a permit shall be punished by a fine of up to 50,000 kroons. § 38. Proceedings (1) The provisions of the General Part of the Penal Code and of the Code of Misdemeanour Procedure apply to the misdemeanours provided for in § 37 of this Act. (2) The Environmental Inspectorate shall conduct extra-judicial proceedings in the matters of the misdemeanours provided for in § 37 of this Act.

15.6 kroons = 1 EUR

**Ireland:** All enforcement actions are possible and available depending on severity of incident and desired corrective action.
6 Access to information concerning waste issues

6.1 How is it ensured in your national legislation that data relating to waste prevention, recovery and disposal is made public during the permit procedure according to your legislation (Article 15 of the IPPC Directive)?

| TABLE 77 | Section 356a of Industry and Trade Act 1994 obliges the competent authority to inform the public about an existing permit application by means of certain mass media (newspapers) that public access to application documents is possible within 6 weeks. Everyone is allowed to comment on this application. |
| Austria | Section 356a of Industry and Trade Act 1994 obliges the competent authority to inform the public about an existing permit application by means of certain mass media (newspapers) that public access to application documents is possible within 6 weeks. Everyone is allowed to comment on this application. |
| Belgium | On the one hand, at Regional level the Decree of 29 August 1991 regulates access to the information concerning the environment in the Brussels-Capital Region. On the other hand, the OPE (decree concerning environmental permits dated 5 June 1997) demands that for each application for an environmental permit a public enquiry (15 days) is organised with the opportunity to inspect the application file; make comments in writing; be heard by the consultation committee that is organised after the public enquiry (this is for class 1A and 1B permits). |
| Croatia | Law on environmental protection (Official Gazette 82/94, 128/99) Public Participation Principle Article 17: Citizens have the right to a timely information on environmental pollution, on the measures undertaken and on the related free access to environmental data, in accordance with the present Law and other regulations. During institutional solving of environmental protection issues, the governmental authorities and the authorities in units of local government and local government and self-government shall ensure participation of the interested parties, in compliance with the present Law and other regulations. Public Character of Environmental Data Article 49: The governmental authorities and authorities in units of local government and local government and self–government, legal persons with public authorities, legal persons with environmental competencies and legal persons polluting the environment by their activities, having at their disposal data on environmental state, environmental impact of proposed and performed developments, environmental protection measures, and other data of environmental importance, shall ensure public access to the said data, unless a special law classifies them as state, military, professional or business secrets. All those mentioned in paragraph 1 of the present Article must immediately notify the public of any transgressions of the set environmental pollution levels, as well as keep the public informed on environmental pollution on a periodical basis. Natural and legal persons performing environmentally polluting activities shall keep records on the data of environmental importance and forward them, within prescribed time-limits, to the bodies in charge of keeping Environmental Pollution Records and Cadastre as referred to in Article 40, paragraphs 1 and 2 of the present Law. Those referred to in paragraph 1 of the present Law shall inform the public and provide the interested institutions, organisations and individuals with the available data within a month after having received the request. In exceptional cases of grave and imminent danger for the environment, those referred to in paragraph 1 of the present Article shall, as soon as possible, inform the public through the mass media. For the purpose of providing environmental data, a special regulation, passed by the Director, may set the fees to be paid for the data provided, in relation to the material expenses of the data provider. Article 51: 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 |
| Cyprus | Law for the free access to environmental information (125/(I)/2000). To be amended. |
| Czech Republic | § 8 (act no.76/2002 Coll. On IPPC) Forwarding the Application and Disclosure to the Public 1) Within 7 days of the date of receiving an application containing all the prescribed requisites and within the same deadline after the date of supplementing of an incomplete application with all the prescribed requisites, the Authority shall send the application for evaluation to a) the participants in the procedure, except the operator of the installation who submitted the application, b) the relevant administrative authorities exercising competence pursuant to the special regulations and whose administrative acts are replaced by granting of the integrated permit, c) the Authorized person, d) a country whose environment could be significantly detrimentally affected by operation of the installation (hereinafter an “affected state”). (2) Simultaneously, within the deadline pursuant to paragraph 1 above, the Authority shall disclose the application to the public on the portal of the public administration. It shall provide for disclosure of a brief summary of the information pursuant to §4 (d) and information on when and where the application may be perused, and excerpts, written copies or photocopies may be made therefrom, on its official notice board and on the official notice board of the municipality in whose territory the installation is or is to be located. The Authority and the municipality shall display this information on their official notice boards for a period of 30 days. Within this period of time, any person may send the Authority his/her opinion on the application. In cases of doubt, the date of commencement of public disclosure shall be the date on which the Authority disclosed the application on the portal of the public information. (3) In cooperation with the Ministry of Foreign Affairs, the Authority shall also provide the application to the affected state for public disclosure, where it shall proceed in accord with international agreements binding the Czech Republic. (4) The Authority shall be obliged to ensure protection of business secrets, personal information and other information protected pursuant to the special regulations), if this information is designated as protected in the application. Some general information may not be so designated.
<table>
<thead>
<tr>
<th>Country</th>
<th>IPPC Act: Chapter 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estonia</td>
<td>Access to information on permits</td>
</tr>
<tr>
<td></td>
<td>§ 29. Public notice concerning submission of application for permit</td>
</tr>
<tr>
<td></td>
<td>(1) The issuer of permits shall notify the public of the receipt of an application for permit in the official publication <em>Ametlikud Teadaanded</em> at the expense of the applicant within twenty one calendar days after the compliance of the application with the requirements has been verified. Such notice shall contain at least the following information:</td>
</tr>
<tr>
<td></td>
<td>1) the business name, registry code and seat, or the name, personal identification code and address of the applicant;</td>
</tr>
<tr>
<td></td>
<td>2) the site of the installation;</td>
</tr>
<tr>
<td></td>
<td>3) a short description of the activities;</td>
</tr>
<tr>
<td></td>
<td>4) information on where the application and draft permit may be examined by the public.</td>
</tr>
<tr>
<td></td>
<td>(2) In addition to the publication specified in subsection (1) of this section, the issuer of permits may also notify the public of the receipt of an application for a permit in the local newspaper of the location of the installation at the expense of the applicant.</td>
</tr>
<tr>
<td></td>
<td>(3) Not later than on the date of receipt of a notice concerning the acceptance of an application for a permit for processing, the operator shall display a notice concerning the submission of the application for a permit at the seat of the planned installation or by the main entrance of an existing installation, and shall guarantee the display of the notice during the time of review of the permit.</td>
</tr>
<tr>
<td></td>
<td>(4) Within five working days after the compliance of an application for a permit with the requirements has been verified, the issuer of permits shall display a notice concerning the receipt of the application for a permit at its seat in a place accessible to the public.</td>
</tr>
<tr>
<td></td>
<td>(5) The standard format of the notices specified in subsections (3) and (4) of this section shall be established by a regulation of the Minister of the Environment. The Minister of the Environment may establish the obligation that notices concerning applications for permits be made accessible to the public through the Internet.</td>
</tr>
<tr>
<td></td>
<td>§ 30. Public notice concerning grant of permit</td>
</tr>
<tr>
<td></td>
<td>(1) The issuer of permits shall notify the public of the grant of a permit in the official publication <em>Ametlikud Teadaanded</em> within seven calendar days after the grant of the permit. A notice concerning the grant of a permit shall contain at least the information specified in subsection 29 (1) of this Act.</td>
</tr>
<tr>
<td></td>
<td>(2) If the issuer of permits has published a notice concerning the submission of an application for a permit in the local newspaper of the seat of the installation, a notice concerning the grant of the permit shall also be published in the same newspaper at the expense of the applicant.</td>
</tr>
<tr>
<td></td>
<td>(3) The Minister of the Environment may establish the obligation that notices concerning the grant of permits be made accessible to the public through the Internet.</td>
</tr>
<tr>
<td></td>
<td>§ 31. Accessibility of information</td>
</tr>
<tr>
<td></td>
<td>(1) Applications for permits, draft permits, permits, environmental monitoring results in the possession of administrative agencies assigned by permits and inspection results concerning compliance with the requirements of permits are public.</td>
</tr>
<tr>
<td></td>
<td>(2) Information concerning the building design or activities of an installation, composition or use of certain raw materials, chemicals or other materials or products may be made confidential if such information is submitted as a separate part of the application and is clearly marked with the word “Ärisaladus” [business secret]. Information bearing such notice may be made public by the issuer of permits with the consent of the applicant unless otherwise provided by law.</td>
</tr>
<tr>
<td></td>
<td>§ 32. Positions of public</td>
</tr>
<tr>
<td></td>
<td>(1) Everyone has the right to make written propositions to the issuer of permits concerning an application for a permit before a draft permit is forwarded to the operator for an opinion.</td>
</tr>
<tr>
<td></td>
<td>(2) In order to enable persons who have an interest in the grant of a permit to examine the draft permit and submit any relevant propositions during the period specified in subsection 14 (5) of this Act, the issuer of permits shall inform such persons, at their request, of the handing over of the draft permit to the applicant for the permit.</td>
</tr>
<tr>
<td></td>
<td>(3) A written opinion or proposition shall contain, at least, the name and address of the person who submitted it, and the reasoning for such opinion or proposition.</td>
</tr>
<tr>
<td></td>
<td>§ 32. Public session</td>
</tr>
<tr>
<td></td>
<td>The issuer of permits shall hold a public session at the request of an applicant for the permit or of an interested person or at its own initiative if this is necessary for the just adjudication of the matter.</td>
</tr>
<tr>
<td></td>
<td>§ 33. Register of integrated environmental permits</td>
</tr>
<tr>
<td></td>
<td>(1) The register of integrated environmental permits is a public database which contains consolidated information concerning the issue of permits and inspection and monitoring of the compliance of the permits with the requirements.</td>
</tr>
<tr>
<td></td>
<td>(2) The register of integrated environmental permits shall be established by the Government of the Republic on the basis of the Databases Act.</td>
</tr>
</tbody>
</table>

Finland: The whole permit application document must be for public display 30 days in the place that has been mentioned in the publication announcement.
<table>
<thead>
<tr>
<th>Country</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>For IPPC-installations the Federal Immission Control Act prescribes a permit procedure including access to information and public participation. Art. 10 par. 3: If the documents submitted are complete, the competent authority shall give public notice of the project in its official gazette and, additionally, in any daily newspapers as are widely read in the area where the installation is to be established. The application and supporting documents shall be made available for public inspection for a period of one month following such notice; and objections raised against the project may be lodged with the competent authority in writing, until the end of two weeks after expiry of the inspection period. Art. 10 par. 6: After expiry of the period allowed for objections, the licensing authority shall discuss the arguments against the project with the applicant and those having raised them. Art. 10 par. 7: The permit shall be served on the applicant and any persons who lodged objections. Art. 10 par. 8: The service of the permit to those persons who lodged objections can be replaced by public notice.</td>
</tr>
<tr>
<td>Greece</td>
<td>According to the national legislation, the EIA report has to be made public, in the prefecture council and to the citizens (on request) within a specific time period. After this period, only the permit (the environmental conditions of the EIA) is publicly available.</td>
</tr>
<tr>
<td>Italy</td>
<td>Dlgs. 4th August 1999, n.372, art.4, comma 5, 6, 12; art.9, comma 2, 6</td>
</tr>
<tr>
<td>Slovakia</td>
<td>By the Act on IPPC itself, i.e. publishing the application, public hearing when asked by public, publishing of the permit, by the Act on Free Access to Information</td>
</tr>
<tr>
<td>Spain</td>
<td>When applying for the integrated permit there is a public information and also when the resolution of the permit</td>
</tr>
<tr>
<td>Sweden</td>
<td>The main principle in Swedish legislation is that all public documents are made public, the so called principle of public access to official records. Shortly it means that all documents handed in to or created at Swedish authorities, the Swedish parliament and municipalities are made public and should be made available to the person asking for it. Worth mentioning is also chapter 6 in the Environmental code regulating environmental impact statements and other decision guidance data. According to section 4 in the same chapter should persons who intend to pursue an activity or take a measure for which a permit or decision concerning permissibility is required to this code or to rules issued in pursuance thereof shall consult the county administrative board at an early stage. They shall also consult private individuals who are likely to be affected and must do so in good time and to an appropriate extent before submitting an application for a permit and preparing the environmental impact statement. In other words the operator should consult private individuals living nearby and others that may be affected by the operation in an early stage. If the county administrative board decides pursuant to section 4 that the activity or measure is likely to have a significant environmental impact, an environmental impact assessment procedure shall be held. In such a procedure the person who intends to undertake the activity or measure shall consult the other government agencies, the municipalities, the citizens and the organizations that are likely to be affected (section 5). The consultations regulated in chapter 6 make it possible for the public, in an early stage, to get information and to affect the foundation of the permit application and the environmental impact statement. Furthermore, according to chapter 19 section 4 the county administrative board shall for example, when considering permit applications, give persons affected by the activity the opportunity to comment by publishing notices in local newspapers or by other suitable means and hold a meeting with persons affected by the matter. According to chapter 22 section 3 the environmental court shall, when an application is to be considered, publish a notice. The notice shall be published in a local newspaper without delay. The principle rule is that a main hearing shall be held when a permit application is to be considered by a court. The main hearings are public, which means that anyone can participate.</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Regulations require that a full public consultation is carried out at application stage and at any subsequent substantial variation to the operation of the installation. Regulations include information which must be included on public registers and replicates the requirements of Article 15. Emissions data is made available through the web based Pollution Inventory. For England and Wales see link: <a href="http://www.environment-agency.gov.uk/business/444255/446867/255244/">www.environment-agency.gov.uk/business/444255/446867/255244/</a>. For Scotland see link: <a href="http://www.sepa.org.uk/spi/index.htm">www.sepa.org.uk/spi/index.htm</a></td>
</tr>
</tbody>
</table>
6.2 Are there any limitations (confidentiality clauses) in your legislation on making this data public?

<table>
<thead>
<tr>
<th>TABLE 78</th>
<th>Yes or no</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Yes</td>
<td>Business secrets require an evaluation whether the right of public information is stronger than the operator’s interest in privacy (public access to sensitive data that would cause damage to operator or third party rights or would threaten the competent authority’s work is prohibited. The competent authority has to weigh up public interest in free flow of information vs. operator or third party interests in privacy). Free public access must be available to all data according to section 4 (2) No. 3 of Environmental Information Act (“emissions or waste generated in an installation ...in a statistical form”).</td>
</tr>
<tr>
<td>Belgium</td>
<td>No</td>
<td>The entire application file must be available for inspection during the public enquiry</td>
</tr>
<tr>
<td>Croatia</td>
<td>Yes</td>
<td>According to the relevant Directive</td>
</tr>
<tr>
<td>Cyprus</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Yes</td>
<td>The act no.365/2000 Sb. On public administration information systems</td>
</tr>
<tr>
<td>Estonia</td>
<td>Yes</td>
<td>Described in previous section</td>
</tr>
<tr>
<td>Finland</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>Yes</td>
<td>Yes but limited, Art. 10 par. 2 Federal Immission Control Act: To the extent any documents presented contain trade or industrial secrets, such documents shall be marked accordingly and submitted separately. Where this can be done without disclosing the secret contained in such document, the contents thereof must be described in sufficient detail so as to enable third persons to assess whether and to what extent they might be affected by the installation concerned.</td>
</tr>
<tr>
<td>Greece</td>
<td>Yes</td>
<td>According to the Greek legislation, industries related with National Security Issues (which produce products for the army) are excluded from the obligation on making any data public available, as highly confidential.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes</td>
<td>Only in very limited circumstances and at the discretion of the EPA. See Section 39 of the Environmental Protection Agency Acts 1992 to 2003</td>
</tr>
<tr>
<td>Italy</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
<td>Yes</td>
<td>When it is confidential, according the law</td>
</tr>
<tr>
<td>Spain</td>
<td>Yes</td>
<td>The Ministry or the General Director will decide when (there are political and legal reasons)</td>
</tr>
<tr>
<td>Sweden</td>
<td>Yes</td>
<td>The principle of public access to official records have limitations in the Official Secrets Act. The provisions in question can for example be protection of Sweden’s security, international relations, circumstances of personal or economic nature, preservation of fauna and flora and authorities inspection</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Yes</td>
<td>Commercial confidentiality may be claimed as well as national security. Regulator must assess such claims and the operator has a right of appeal if there is no agreement at this time</td>
</tr>
</tbody>
</table>

6.3 The data in the application concerning waste prevention, recovery and disposal

<table>
<thead>
<tr>
<th>TABLE 79</th>
<th>is always made public</th>
<th>is never made public</th>
<th>can be declared as confidential</th>
<th>can be declared only partly as confidential</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>See 6.2</td>
</tr>
<tr>
<td>Belgium</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Croatia</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>if the applicant asks not to reveal a secret procedure (in exceptional circumstances)</td>
<td>-</td>
</tr>
</tbody>
</table>
### 6.4 Is monitoring data concerning waste prevention, recovery and disposal

<table>
<thead>
<tr>
<th>Country</th>
<th>Always made public</th>
<th>Never made public</th>
<th>Can be declared as confidential</th>
<th>Can be declared only partly as confidential</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Free public access must be available to all data according to section 4 (2) of Environmental Information Act. (“emissions or waste generated in an installation … in a statistical form”).</td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Croatia</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Cyprus</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>They are available to whom may concern</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Estonia</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>Is made public on request, but trade and business secrets may not be made accessible without authorization according to Art. 8 Environmental Information Act.</td>
</tr>
<tr>
<td>Greece</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>As per question 6.3</td>
</tr>
<tr>
<td>Italy</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Slovakia</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>The Ministry or the General Director will decide when (there are political and legal reasons)</td>
</tr>
<tr>
<td>Sweden</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>Please see the answer to question 6.3</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Unless exempt for reasons of national security</td>
</tr>
</tbody>
</table>

---

**ANNEX I**

- **Czech Republic**
  - Described in 6.1

- **Estonia**
  - Conditions see 6.2

- **Finland**
  - If it is a part of process modification it can be partly confidential.

- **Germany**
  - Apart from confidential cases as mentioned above, data are always made public for a specific time period according to the legislation.

- **Greece**
  - Only rarely is the information deemed confidential. Pharmaceutical industry mainly.

- **Italy**
  - Conditions see 6.2

- **Spain**
  - The principles described in 6.1 and 6.2 mean that in principle is the data during the permitting procedure subject to the principle of public access to official records. There might however be limitation in the data made public for example if it is necessary with regard to individuals personal or economic circumstances or the preservation of certain fauna or flora

- **Ireland**
  - The Ministry or the General Director will decide when (there are political and legal reasons)

### TABLE 80

<table>
<thead>
<tr>
<th>Country</th>
<th>Always made public</th>
<th>Never made public</th>
<th>Can be declared as confidential</th>
<th>Can be declared only partly as confidential</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>Free public access must be available to all data according to section 4 (2) of Environmental Information Act. (“emissions or waste generated in an installation … in a statistical form”).</td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Croatia</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Cyprus</td>
<td>-</td>
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<td>-</td>
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<td></td>
</tr>
<tr>
<td>Estonia</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Finland</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>Is made public on request, but trade and business secrets may not be made accessible without authorization according to Art. 8 Environmental Information Act.</td>
</tr>
<tr>
<td>Greece</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>As per question 6.3</td>
</tr>
<tr>
<td>Italy</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Slovakia</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>The Ministry or the General Director will decide when (there are political and legal reasons)</td>
</tr>
<tr>
<td>Sweden</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td>Please see the answer to question 6.3</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Unless exempt for reasons of national security</td>
</tr>
</tbody>
</table>
### 6.5 What kind of data can be declared as confidential concerning waste prevention, recovery and disposal?

<table>
<thead>
<tr>
<th>TABLE 8I</th>
<th>All waste prevention related data</th>
<th>Product characteristics</th>
<th>Total waste generation</th>
<th>The quality and characteristic of waste</th>
<th>Waste disposal</th>
<th>Warnings for not complying the permit conditions</th>
<th>Other</th>
<th>Please specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>Theoretically all data regarding business secrets could be considered confidential (see 6.2).</td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>None</td>
</tr>
<tr>
<td>Croatia</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td></td>
<td>Another relevant state laws are prescribing what kind of data can be declared as confidential, e.g. military facilities</td>
</tr>
<tr>
<td>Cyprus</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Czech Republic</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>Information concerning the building design or activities of an installation, composition or use of certain raw materials, chemicals or other materials or products may be made confidential if such information is submitted as a separate part of the application and is clearly marked with the word &quot;Ärisaladus&quot; [business secret]. Information bearing such notice may be made public by the issuer of permits with the consent of the applicant unless otherwise provided by law.</td>
</tr>
<tr>
<td>Finland</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>France</td>
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<td></td>
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</tr>
<tr>
<td>Germany</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ireland</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>x</td>
<td></td>
<td>Waste characteristics</td>
</tr>
<tr>
<td>Italy</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td></td>
<td></td>
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<tr>
<td>Slovakia</td>
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<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
<td>x</td>
<td>-</td>
<td>x</td>
<td>x</td>
<td>-</td>
<td></td>
<td>The Ministry or the General Director will decide when (there are political and legal reasons)</td>
</tr>
<tr>
<td>Sweden</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td>There is not in Sweden a list of data that can be declared as confidential. There is a new judgment in each individual case. According to Swedish legislation it is therefore not possible to give a general answer to the question. Please see the answer to question 6.3.</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>-</td>
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<td>-</td>
</tr>
</tbody>
</table>
6.6 Are there any difficulties concerning access to information on making waste prevention, recovery and disposal data available to the public in the permit procedure and inspections, e.g. confidential data (Article 15 of the IPPC Directive)?

<table>
<thead>
<tr>
<th>TABLE 82</th>
<th>Yes or no</th>
<th>Please, specify:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>-</td>
<td>At present no experience</td>
</tr>
<tr>
<td>Belgium</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Croatia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Finland</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Germany</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Greece</td>
<td>No</td>
<td>In general, data is public available within a certain time period and confidential data is not public available according to the legislation.</td>
</tr>
<tr>
<td>Ireland</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Italy</td>
<td>Yes</td>
<td>Difficulties in the data management</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No</td>
<td>-</td>
</tr>
<tr>
<td>Spain</td>
<td>Yes</td>
<td>The Ministry or the General Director will decide when (there are political and legal reasons)</td>
</tr>
<tr>
<td>Sweden</td>
<td>No</td>
<td>The answer to this question is no. As described in answers to question 6.1–6.3 the main principle in Sweden is that all public documents are made public if the requirements in the Officials Secrets Act are not fulfilled</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>No</td>
<td>-</td>
</tr>
</tbody>
</table>

7 Final questions

7.1 What are the main problems with waste prevention in the environmental permit procedure?

<table>
<thead>
<tr>
<th>TABLE 83</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>The main problems arise due to the Austrian legal principle that every IPPC permit is based on an application submitted to the competent authority by the operator. That means technical modifications of a project only may go as far as the character or core part(s) of a project is/are not altered completely (e.g. the competent authority must not impose permit conditions that totally change the project character). Furthermore in the context of issuing a permit for an industrial installation only permit conditions regarding the concrete installation itself are allowed. E.g. it is not possible to steer the life cycle of a product or the means of transport. At the moment there is not sufficient guidance about state-of-the-art techniques available how to prevent, reduce, recover or dispose waste.</td>
</tr>
<tr>
<td>Belgium</td>
<td>It is difficult for us to evaluate the real production of the waste, we do not know that what the operator declares is really what he produced. Wouldn’t it be interesting to have a general study to estimate the production of waste compared to the activity, e.g. waste production compared to the number of cars treated for the garages.</td>
</tr>
<tr>
<td>Croatia</td>
<td>N/A</td>
</tr>
<tr>
<td>Cyprus</td>
<td>Use of the proper raw materials for each enterprise. It is not easy to change their routine procedure.</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>Please see 7.8</td>
</tr>
<tr>
<td>Estonia</td>
<td>Generation of waste is not directly restricted by law</td>
</tr>
</tbody>
</table>
ANNEX I

<table>
<thead>
<tr>
<th>Country</th>
<th>Problem Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finland</td>
<td>The quality of BREFs, the electronic reporting system and exchange of information</td>
</tr>
<tr>
<td>Germany</td>
<td>Detailed knowledge on industrial processes is needed, highly qualified staff indispensable.</td>
</tr>
<tr>
<td>Greece</td>
<td>At the moment, it is difficult to refer to problems with waste prevention in the environmental permit procedure, mainly because the IPPC Directive is recently transposed in the Greek legislation; Additionally, although that other, recent as well, national regulations deal with waste prevention of specific waste streams therefore, it is still very early to evaluate the impact to the environmental permit procedure.</td>
</tr>
<tr>
<td>Ireland</td>
<td>BREF has not dealt with this adequately. All knowledge resides with operators on best process changes with respect to cleaner production. Getting access to, and/or releasing and sharing this knowledge is a challenge. EU EPSR does not require accounting of key pollutants transferred to waste stream.</td>
</tr>
<tr>
<td>Italy</td>
<td>The lack of targets.</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No experience until now (no IPPC permit has not been issued until now, Act on IPPC is in effort from August 1, 2003. IPPC Department of the Slovak Inspectorate of the Environment - responsible for issuing IPPC permits - was established to the same date - August 1, 2003).</td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>-</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Risk of being overlooked due to wide range of environmental considerations.</td>
</tr>
</tbody>
</table>

7.2 What are the main problems with waste recovery in the environmental permit procedure?

<table>
<thead>
<tr>
<th>Country</th>
<th>Problem Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>See 7.1</td>
</tr>
<tr>
<td>Belgium</td>
<td>We have already problems with the procedures of the hazardous waste, the proceedings are difficult and do not give enough guaranties about the following up of the waste. Particular problem for the Brussels capital region, were we do not have a treatment centre for hazardous waste.</td>
</tr>
<tr>
<td>Croatia</td>
<td>N/A</td>
</tr>
<tr>
<td>Cyprus</td>
<td>New methods and equipment are expensive. Also the staff is uneducated.</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>The recovery of waste is a too general principle in law, no direct restrictions for disposal</td>
</tr>
<tr>
<td>Finland</td>
<td>See 7.1</td>
</tr>
<tr>
<td>Germany</td>
<td>See 7.1</td>
</tr>
<tr>
<td>Greece</td>
<td>At the moment, it is difficult to refer to problems with waste recovery in the environmental permit procedure, mainly because the IPPC Directive is recently transposed in the Greek legislation therefore there is still limited knowledge for such cases. Additionally, although that other, recent as well, national regulations deal with waste recovery of specific waste streams therefore, it is still very early to evaluate the impact to the environmental permit procedure.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Can be administratively a burden as permit may need to be revised, as well as new planning permission and perhaps an EIS. Also knowledge principally resides with the operators. Again BREF weak in this area.</td>
</tr>
<tr>
<td>Italy</td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No experience until now</td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>-</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Extent to which regulator is able to direct or control waste management options put forward by operator as BAT. It is difficult to control offsite recovery and disposal through the IPPC permit.</td>
</tr>
</tbody>
</table>
7.3 What are the main problems with waste disposal in the environmental permit procedure?

<table>
<thead>
<tr>
<th>Country</th>
<th>Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>See 7.1</td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
</tr>
<tr>
<td>Croatia</td>
<td>N/A</td>
</tr>
<tr>
<td>Cyprus</td>
<td>Not proper places for waste disposal of hazardous waste yet.</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>Environmentally safe disposal sites will be a direct demand only from year 2009.</td>
</tr>
<tr>
<td>Finland</td>
<td>See 7.1</td>
</tr>
<tr>
<td>Germany</td>
<td>See 7.1</td>
</tr>
<tr>
<td>Greece</td>
<td>We cannot refer to particular problems with waste disposal. Waste disposal usually takes place outside the installation site (except of cases of temporary storage on site). The operator has to be licensed by the local authorities for waste disposal and this license is included in the permit conditions.</td>
</tr>
<tr>
<td>Ireland</td>
<td>Same as 7.2. Public objection to incinerators and landfill where these are an associated activity to another industrial activity.</td>
</tr>
<tr>
<td>Italy</td>
<td>-</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No experience until now.</td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>-</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>As 7.2</td>
</tr>
</tbody>
</table>

7.4 Where can the main opportunities for waste prevention be found?

<table>
<thead>
<tr>
<th>Country</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Change in production technologies or techniques and /or change in product design.</td>
</tr>
<tr>
<td>Belgium</td>
<td>-</td>
</tr>
<tr>
<td>Croatia</td>
<td>-</td>
</tr>
<tr>
<td>Cyprus</td>
<td>Access to information by the public through internet, etc.</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-</td>
</tr>
<tr>
<td>Estonia</td>
<td>To demand the finances for environmentally safe recovery or disposal from the person, who generates the waste; to prohibit a list of wastes that have no environmentally safe method for further handling.</td>
</tr>
<tr>
<td>Finland</td>
<td>In product design, packaging of products and environmental education of people.</td>
</tr>
<tr>
<td>Germany</td>
<td>With the operators. Conditions are good information and the possibility to save money.</td>
</tr>
<tr>
<td>Greece</td>
<td>At the moment, it is quite early to refer to specific opportunities for waste prevention. The basic framework that we follow consists of the guidelines in the BREFs and the general environmental principles, measures and experience for each sector.</td>
</tr>
<tr>
<td>Ireland</td>
<td>With the operators. Funded Cleaner Technology programs and information sharing have been very successful. There is huge scope for sectoral initiatives here. Message that it can save money/reduce liability, is main selling point for industry. In particular I draw your attention to the EPA sponsored cleaner technology program. This can be seen at <a href="http://www.ctc-cork.ie/cgpp">www.ctc-cork.ie/cgpp</a></td>
</tr>
<tr>
<td>Italy</td>
<td>Wide application of the “Polluter pays” principle and the use of financial instruments.</td>
</tr>
<tr>
<td>Slovakia</td>
<td>No experience until now</td>
</tr>
<tr>
<td>Spain</td>
<td>-</td>
</tr>
<tr>
<td>Sweden</td>
<td>-</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Improvement in management control of existing operations; improved operator analysis of material consumption and waste flows in order to identify opportunities for waste prevention.</td>
</tr>
</tbody>
</table>
7.5 What suggestions are there for further development of waste prevention in the environmental permit procedure?

<table>
<thead>
<tr>
<th>TABLE 87</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Austria</strong></td>
<td>Benchmarking certain types of industrial production processes (the way how goods are produced). Reduce the amount of hazardous waste generated by committing the operator to use only certain — waste reducing - input materials and production technologies (set as obligations in the permit).</td>
</tr>
<tr>
<td><strong>Belgium</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Croatia</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Cyprus</strong></td>
<td>We are thinking of introducing Environmental Management System as a permit condition for IPPC installations.</td>
</tr>
<tr>
<td><strong>Czech Republic</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Estonia</strong></td>
<td>More precise description of this principle and opportunities of the permitting authority.</td>
</tr>
<tr>
<td><strong>Finland</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Germany</strong></td>
<td>Best available techniques on waste prevention should be specified in the BREFs and should be made available in the official languages by the commission, promotion of management systems for material flow. Operators should participate in the work on the BREFs.</td>
</tr>
<tr>
<td><strong>Greece</strong></td>
<td>It is quite early to make any suggestions. We continuously observe the progress of the environmental permit procedure, in order to be able to make out comments in future.</td>
</tr>
<tr>
<td><strong>Ireland</strong></td>
<td>Make BREF’s better in the area of waste. EU funded Cleaner Technology programs, information sharing. Get industry to lead this area. EU Cleaner Technology web page resource. No incentive at the moment for industry to clean waste as the EPER requirements do not ask for assessment of losses of key pollutants in waste stream. This gap must be closed.</td>
</tr>
<tr>
<td><strong>Italy</strong></td>
<td>Developing of specific targets and indicators.</td>
</tr>
<tr>
<td><strong>Slovakia</strong></td>
<td>No experience until now.</td>
</tr>
<tr>
<td><strong>Spain</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Sweden</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>United Kingdom</strong></td>
<td>Improve guidance on waste prevention techniques. In addition there is a need to develop industry training and awareness of waste prevention techniques.</td>
</tr>
</tbody>
</table>

7.6 What suggestions are there for further development of waste recovery in the environmental permit procedure?

<table>
<thead>
<tr>
<th>TABLE 88</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Austria</strong></td>
<td>See 7.5</td>
</tr>
<tr>
<td><strong>Belgium</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Croatia</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Cyprus</strong></td>
<td>We are thinking of introducing Environmental Management System as a permit condition for IPPC installations.</td>
</tr>
<tr>
<td><strong>Czech Republic</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Estonia</strong></td>
<td>More precise description of this principle and opportunities of the permitting authority.</td>
</tr>
<tr>
<td><strong>Finland</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Germany</strong></td>
<td>See 7.5</td>
</tr>
<tr>
<td><strong>Greece</strong></td>
<td>It is quite early to make any suggestions. We continuously observe the progress of the environmental permit procedure in order to be able to make out comments in future.</td>
</tr>
<tr>
<td><strong>Ireland</strong></td>
<td>Remove/reduce administrative barriers. Knowledge sharing.</td>
</tr>
<tr>
<td><strong>Italy</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Slovakia</strong></td>
<td>No experience until now.</td>
</tr>
<tr>
<td><strong>Spain</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>Sweden</strong></td>
<td>-</td>
</tr>
<tr>
<td><strong>United Kingdom</strong></td>
<td>-</td>
</tr>
</tbody>
</table>
7.7 What suggestions are there for further development of waste disposal in the environmental permit procedure?

<table>
<thead>
<tr>
<th>TABLE 89</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
</tr>
<tr>
<td>Belgium</td>
</tr>
<tr>
<td>Croatia</td>
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<tr>
<td>Cyprus</td>
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<tr>
<td>Czech Republic</td>
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<tr>
<td>Estonia</td>
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<tr>
<td>Finland</td>
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<tr>
<td>Germany</td>
</tr>
<tr>
<td>Greece</td>
</tr>
<tr>
<td>Ireland</td>
</tr>
<tr>
<td>Italy</td>
</tr>
<tr>
<td>Slovak Republic</td>
</tr>
<tr>
<td>Spain</td>
</tr>
<tr>
<td>Sweden</td>
</tr>
<tr>
<td>United Kingdom</td>
</tr>
</tbody>
</table>

7.8 Further comments on this questionnaire

<table>
<thead>
<tr>
<th>TABLE 90</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
</tr>
<tr>
<td>Belgium</td>
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<tr>
<td>Croatia</td>
</tr>
<tr>
<td>Cyprus</td>
</tr>
<tr>
<td>Czech Republic</td>
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<tr>
<td>Estonia</td>
</tr>
<tr>
<td>Finland</td>
</tr>
<tr>
<td>Germany</td>
</tr>
<tr>
<td>Greece</td>
</tr>
<tr>
<td>Ireland</td>
</tr>
<tr>
<td>Italy</td>
</tr>
<tr>
<td>Slovak Republic</td>
</tr>
<tr>
<td>Spain</td>
</tr>
<tr>
<td>Sweden</td>
</tr>
<tr>
<td>United Kingdom</td>
</tr>
</tbody>
</table>
Annex II. FINAL PROGRAMME OF THE IMPEL WASTE SEMINAR IN HELSINKI 9.–11.5.2004

Sunday 9.5.2004
Arrival of the participants
18.00–21.00 Get-together party with Finnish sauna at the Finnish Environment Institute (Mechelininkatu 34a, 8th floor)

Monday 10.5.2004, Finnish Environment Institute

Chairman: Markku Hietamäki
Environmental Counsellor, Environmental Protection in Industry and Trade Ministry of the Environment
8.45 Registration
9.00 Opening and presentation of the Finnish Environment Institute
Department Director Esa Nikunen
9.30 Presentation of seminar topics
Project Manager Marianne Lindström
10.00 Viewpoints of the Ministry of the Environment
Legal Advisor Tuomas Aarnio
10.15 Coffee
10.30 Viewpoints of the Ministry of Trade and Industry
Senior Advisor Aimo Aalto
10.45 Possibilities to minimise waste production in industry
Dr Tech. Matti Koponen
11.30 Analyses of the questionnaire
Project Manager Marianne Lindström and
Project Researchers Mikko Attila, Jaana Pennanen and Terhi Peltonen
12.30 Lunch
13.30 General discussion on the main points of the questionnaire
14.30 Coffee
15.00 Working in groups, Session I
16.40 Presentations of the results of the working groups, Session I
17.30 Closing the first day
19.00 Dinner at Restaurant Kappeli (Eteläesplanadi 1)
Tuesday 11.5.2004, Finnish Environment Institute

Chairman: Alec Estlander  
Division Manager, Environmental Management Division  
Finnish Environment Institute

9.00 The Finnish project on waste minimisation  
Senior Advisor Hanna Salmenperä

9.20 Working in groups, Session II

11.10 Coffee

11.20 Presentation of the results of the working groups, Session II

12.00 Lunch

13.00 Key difficulties of handling waste issues in environmental permitting

14.00 Suggestions for good practice

15.30 Conclusions and proposal for further work

16.00 Closing the seminar
# ANNEX II

## PARTICIPANTS OF THE IMPEL SEMINAR in HELSINKI 9.–11.5.2004

<table>
<thead>
<tr>
<th>NR</th>
<th>COUNTRY</th>
<th>NAME</th>
<th>ORGANISATION</th>
<th>ADDRESS</th>
<th>TEL/FAX/E-MAIL</th>
</tr>
</thead>
<tbody>
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Annex III. STUDY ON BEST AVAILABLE TECHNIQUES REFERENCE DOCUMENTS AND WASTE MANAGEMENT / MINIMISATION.

By Thibault Siberil

1 Presentation

The goal of this chapter is to present the most important information and aspects concerning waste minimisation/management found within the Best Available Techniques Reference Documents (BREF). There are 33 industrial sectors for which these BREFs have to be establish by 2006. By July 2003, only fourteen BREFs have been adopted. Consequently, all the information and data within this summary are based only on these documents (the BREF about agriculture is not concerned by the study).

Nevertheless, a good general tendency can be recognised because of the diversity of the analysed industrial sectors. These BREFs include the following industries:

- cement and lime industry
- chlor-alkali manufacturing industries
- common waste water and waste treatment / management in the chemical sector
- ferrous metals processing industry
- glass manufacturing industry
- industrial cooling systems
- large volume organic chemical industry
- mineral oil and gas refineries
- non-ferrous metal industries
- iron and steel production
- pulp and paper industry
- tanning of hides and skins
- textile processing

It should be noted that all the information and descriptions from the BREFs and obviously also from this Annex are given for information purposes only. The information has no legal value and does not in any way alter or prejudice the actual provisions of the IPPC Directive.

1.1 Composition of the BREFs

Most of the BREFs have the same structure. First is presented general information on the industrial sector concerned and on the industrial processes used within the sector. Then come data and information concerning current emissions and consumption levels reflecting the situation in existing installations at the time of writing.

Generally follows a description of the techniques that are considered to be most relevant for determining BAT. This information includes the consumption and emission levels considered achievable by using these techniques, some idea of the costs and the cross media issues associated with the techniques. Finally are presented the techniques and emission and consumption levels that are considered to be compatible with BAT as a general sense: general indications that might be
considered as an appropriate reference point to assist in the determination of BAT-based permit conditions.

It is to notice that there is two types of BAT/relevant techniques: those which concern all processes of an industrial sector (general BAT/relevant techniques) and those which concern one particularly process (specific BAT/relevant techniques).

### 1.2 General findings

In most cases, the main focus is on, air emissions, wastewater and energy efficiency. Even if there are some fluctuations between the different sectors, generally, waste is not a major environmental issue. But there is still information available in almost all the BREFs. In some sector-specific BREFs, data are quite well structured and detailed. On the other hand, there are BREFs where it is rather complex to collect and organise the information.

There is quite good indications for the nature of wastes generated, their characteristics and their origin. Concerning the eventual techniques to minimise waste, most of the time, there are few details about consumption/emission levels considered achievable and cost. BAT are sometimes also incomplete and very synthesised.

### 2 Cement and lime manufacturing industries

#### 2.1 Importance of waste

The key environmental issues associated with cement and lime production are air pollution and the use of energy, so there is less information about waste minimisation in this BREF. Cement and lime are described separately.

#### 2.2 Cement

##### 2.2.1 Waste data

Waste produced during clinker production consists basically of unwanted rocks, which are removed from the raw materials during the preparation of the raw meal, and kiln dust removed from the by-pass flow and the stack, which is not recycled. Filtrate from the filter presses used in the semi-wet process is fairly alkaline and contains suspended solids.

##### 2.2.2 Best available techniques

Collected dust should be recycled to the production processes whenever practicable. This recycling may take place directly into the kiln or kiln feed (alkali metal content being the limiting factor) or by blending with finished cement products. Alternative uses may be found for material that cannot be recycled.

#### 2.3 Lime industry

##### 2.3.1 Waste data

Early designs of shaft kilns often produce two types of inferior products: an impure fine fraction (possibly mixed with fuel ash) and a fraction consisting of
under-calci...specification product. If such product occurs, it consists principally of dust collected from the exhaust gases, and typically amounts to 0–5% of the total, depending on the characteristics of the feed-stone and the quicklime. Small quantities of partially calci...ed material are produced when the kiln is started-up from cold, and during shut down. Such events may occur at frequencies ranging from once per 6 months to once per 10 years.

Some hydrating plants improve the quality of hydrated lime by removing an inferior grade, consisting of a coarse, carbonate-rich fraction. These inferior grades of material are incorporated into selected products, wherever possible. Otherwise, they are disposed to landfill.

2.3.2 Waste minimisation techniques

In most cases, the collected dust is principally calcium carbonate, with varying amounts of calcium oxide, fuel ash and clay. Disposal techniques for the collected dust ranges from incorporation into commercial products (for example, building lime, lime for soil stabilisation, hydrated lime and pelletised products) to landfill.

Where wet scrubbers are used, the collected suspension is settled, the liquor is generally recycled and the wet solids are in most cases put on landfill sites.

2.3.3 Best available techniques

The utilisation of dust, out-of-specification quicklime and hydrated lime in selected commercial products is considered to constitute BAT.

2.3.4 Recommendation for the future

It could be useful to do a survey of the current abatement techniques, emissions and consumption and monitoring in the lime industry.

3 Chlor-alkali manufacturing industry

3.1 Importance of waste

There is little information available concerning waste management.

3.2 Waste data

The main technologies applied for chlor-alkali production are mercury, diaphragm and membrane cell electrolysis.

3.2.1 From the mercury cell process

Solid wastes can arise at several points in the process. Wastes containing mercury include: sludge from waste water treatment, solids generated during brine purification (filter residue), spent graphite from decomposer cells, sludge from caustic filters (spent caustic filters from the filtration of caustic solution such as graphite candles), etc.
3.2.2 From the diaphragm cell process

Solid wastes in the diaphragm process consist of wastes generated during brine purification and scrapped cell parts, including cell covers, piping and used diaphragms.

3.2.3 From the membrane cell process

Wastes are generated during the secondary brine purification and consist of used materials such as pre-coat and body feed material made of cellulose from auxiliary process (p. 53–54). The quantity of brine filtration sludge mainly depends on the incoming salt.

3.3 Waste minimisation techniques

3.3.1 For the mercury cell process:

Mechanical treatment can be used if significant quantities of metallic mercury are present. Techniques include brushing, ultrasonic vibration, vacuum cleaning and/or nitrogen freezing (for rubber coated steel). Thermal treatment, for instance warm sandblasting in a fluidised bed or pyrolysis in a furnace, is an alternative for coated metallic materials. As for every type of treatment, special attention should be given to minimising mercury emissions to air and to avoiding cross-media effects.

3.4 Best available techniques:

3.4.1 For the mercury cell process:

BAT consist in minimising current and future mercury emissions from handling, storage, treatment and disposal of mercury-contaminated wastes by:

- implementation of a waste management plan drawn up after consultation with the appropriate authorities
- minimising the amount of mercury-containing wastes
- recycling the mercury contained in wastes when possible
- treatment of mercury-contaminated wastes to reduce the mercury content in the wastes
- stabilisation of residual mercury-contaminated wastes before final disposal.

3.4.2 For diaphragm cell plants

- treatment of asbestos-contaminated wastes by thermal or chemical methods to denature asbestos inside wastes. Normally, the resulting slag no longer contain asbestos fibres.

4 Common waste water and waste treatment / management in the chemical sector

The organisation of the disposal of sludge or solid residues from waste water and waste gas treatment is part of the operator’s decision for a chemical site. Since there
are sites that are equipped with appropriate treatment facilities for waste water sludge, its treatment is dealt with in this BREF. But there is not any special section neither BAT about waste minimisation. The treatment of waste apart from waste water sludge is within the scope of other vertical documents for other sectors of Annex 1 of the directive. This BREF, however, will not anticipate the BREF on waste incineration, which is still to be written.

5 Ferrous metal processing industry

In this BREF, hot and cold rolling are described separately. Waste minimisation does not appear as a main environmental issue.

5.1 Waste data

Hot rolling operations generate different kinds of solid and liquid by-products and waste:
- Metallic waste and by-products
- Scarfing scale/swarf
- Dusts from scarfing and rolling
- Mill scale (oil free and oily)
- Water treatment and mill scale sludge
- Grinding sludge (roll shop)
- Oil and greases.

Cold rolling gives rise to solid residues, such as scrap (cleaning rags, cleaning paper), sludges from the waste water treatment plants, remainder of packing material and dust.

5.2 Waste minimisation techniques

There are not really specific BAT concerning waste management. However two techniques related to hot forming are given:
- Internal recycling of dry or drained oxides
- Recycling technologies for oily mill scale.

6 Glass manufacturing industry

6.1 Importance of waste

The key environmental issues associated with Glassmaking are emissions to the air and energy consumption. Waste levels within the sector are very low. Indeed a significant development within the sector has been the increased use of recycled glass.

6.2 Waste data

A characteristic of the Glass Industry is that most of the activities produce relatively low levels of solid waste. Most of the processes do not have significant inherent by-product streams. The process residues consist of unused raw materials and waste glass that has not been converted into the product.
The average rate of utilisation of post consumer waste within the EU Container Glass Sector is approximately 50% of total raw material input, with some installations utilising up to 90% waste glass.

6.3 Waste minimisation techniques

6.3.1 For waste batch materials

These arise from material handling and storage and where quality requirements allow can be readily recycled to the process. In cases where material has built up it may not be of sufficient purity to recycle, but the amount of this type of material can be minimised by the techniques described in Section 4.3 in the BREF.

6.3.2 For dust collected from waste gas streams

In most cases this material can be recycled to the process.

6.3.3 For melt not converted into product

The most commonly used and effective technique is to cool and shatter the melt in water and then to use the cullet formed in this way directly as a raw material.

6.3.4 For waste product

This category includes out of specification material, edge trims, waste product from changeovers, breakages, and quality samples. Wherever possible measures to minimise this type of waste are preferable to recycling, for example edge trims can be reduced to the minimum width. These measures usually also result in economic benefits.

6.3.5 For solid waste from wastewater systems

In general, waste separated from the process water systems is not recycled and is disposed of to landfill. In some sectors particularly domestic glass (lead crystal cutting sludge) initiatives are ongoing to recover and valorise these waste streams. In most sectors it is not financially viable to recover this waste either because of the low volumes or unpredictable/contaminated composition.

6.4 Best available techniques

Wherever practicable, the prevention or where that is not practicable, the minimisation of waste by primary means is considered to constitute BAT.

Wherever practicable, the recycling of cullet or other process waste back to the process is considered BAT. Fine material to be recycled to a hot blast cupola generally requires treatment such as briquetting. In the Continuous Filament Glass Fibre Sector the recycling of process wastes has proven difficult and further development work is recommended.

The recycling of particulate matter collected from waste gas streams to the process wherever practicable is considered to constitute BAT (this does not include regenerator waste). In most melting operations, where dry collection systems are used, this will involve a simple adjustment of the batch formulation to allow for
the composition of the collected material. In some circumstances a compromise may have to be made between achieving the levels discussed for emissions to air and minimising the generation of a solid waste stream.

Where this situation arises it must be considered on an installation specific basis, and on the relative priorities for the minimisation of pollution to the environment as a whole.

7 Industrial cooling systems

7.1 Importance of waste

The environmental aspects of cooling systems vary with the applied cooling configuration, but the focus is predominantly on increasing the overall energy efficiency and reduction of emissions to the aquatic environment.

Little has been reported on residues or wastes. Sludge from cooling water pre-treatment or from the basin of cooling towers have to be regarded as waste. They are treated and disposed of in different ways depending on the mechanical properties and chemical composition.

7.2 Waste minimisation techniques

For all cooling systems, decommissioning of part or all of system can be an issue at some stage.

Retrofitting and replacement of equipment as well as the operating methods result in the following wastes to be disposed of:

- sludge from pre-treatment of intake water (e.g. decarbonisation), treatment of cooling water or blow-down from the operation of recirculating wet cooling towers
- hazardous waste (e.g. small containers, spillage) associated with the chemical treatment of cooling water in wet cooling systems
- waste water of cleaning operations
- wastes as a result of retrofitting, replacing or decommissioning of the installation

7.3 Best Available Techniques

No clear BAT has been identified on the reduction of waste or techniques to handle waste avoiding environmental problems, such as contamination of soil and water, or air in the case of incineration.

8 Large volume organic chemical industry

8.1 Importance of waste

Waste is an important issue in the chemical industry and there are generally strong economic and environmental incentives to reduce generation.
8.2 Waste data

Wastes are very specific to a process, but the key pollutants in wastes can be derived from: knowledge of the process; materials of construction; corrosion/erosion mechanisms and materials related to maintenance.

Solid waste generation and disposal is particularly complex as many operators are required to provide complete information on: special wastes, other hazardous wastes, spent catalysts and desiccants, scrap metal, packaging materials, general rubbish, office and mess room waste materials.

8.3 Waste minimisation techniques

• Prevent waste arising at source: those wastes that are generated by incomplete conversion, degradation or destruction of the raw materials (e.g. tars, unwanted by-products) can be an indicator of process inefficiency and are avoided by process-integrated measures that optimise the raw materials, operating conditions or even the process route.
• Minimise any unavoidable arising of waste: many process agents (e.g. acids, caustic, clay, solvents) generate waste (e.g. spent acid, spent caustic, spent clay, spent solvents). These are high-volume, low-value waste streams that are often polluted by the process chemicals and are difficult to treat in a cost effective way. If the use of such process agents is necessary, the aim is to minimise the consumption (e.g. by extending catalyst life) and to find a useful outlet for the generated waste.
• Recycling of waste – either internally or externally. Spent catalysts are commonly regenerated, especially if they contain precious or toxic metals, but this should only be after their use in the process has been questioned and catalyst deactivation has been minimised by optimising the process conditions.

8.4 Best available techniques (general BAT)

• For catalysts: regeneration/re-use and, when spent, recovery of the precious metal content and the catalyst support put to landfill
• For spent purification media: where possible, to regenerate, and if not to landfill or incinerate under appropriate conditions
• For organic process residues: where possible, to maximise their use as feedstock or as fuel, and if not to incinerate under appropriate conditions
• For spent reagents: where possible, to maximize their recovery or use as fuel, and if not to incinerate under appropriate conditions.

9 Mineral oil and gas refineries

9.1 Importance of waste

The amount of waste generated by refineries is small if it is compared to the amount of raw materials and products that they process. Because of the high operating costs of waste disposal, much priority has been given to waste minimisation schemes.
9.2 Waste data

Oil refinery waste normally covers three categories of materials: sludge (45%), other refinery wastes (35%), non-refining waste (20%).

Refineries generate solid waste and sludge with a range of 0.01–2 kg per tonne of crude processed (before waste treatment). 80% of those solid waste may be considered hazardous because of the presence of toxic organics and heavy metals.

As a common figure, the generation rate of solid waste and sludge is normally less than 0.5% of crude processed, but in some refineries is less than 3%. Annual sludge generation was 1250 kt per year (in 1993).

9.3 Waste minimisation techniques

The BREF deals successively with the different process applied in this sector, especially those with good environmental performance. For some of them, techniques to improve waste minimisation are given:

9.3.1 Bitumen production

- In the bitumen production facilities, including storage, leakages can be produced. Those leakages typically generate waste when mixed with other components as sand.

9.3.2 Catalytic cracking

- Waste is generated during the FCC processes. The selection of catalyst used in FCC, control of emissions of particulates and the proper management of product and slurry tank bottoms can reduce the generation of waste.

9.3.3 Natural gas plants

- Catalysts, absorbents, adsorbents, can be returned to the manufacturers for recycling.
- Where desalination of glycol purge stream is practiced this will give rise to solids for disposal and any residual glycol in these should first be reduced to a low level
- Some of the gas fields contain mercury vapour in very low concentrations. This mercury is removed from the gas in a “cold trap” (e.g. by gas expansion) and recovered as a mercury containing sludge. A specialized company processes this sludge by treatment in a vacuum distillation unit.

9.3.4 End-of-pipe processes

- Establish of a waste management programme
- Sludge management and treatment
- Spent solid catalyst management
- Treatment of heavy residues
- Improve recovery of oils from oily sludge
- Regenerate or eliminate filtration clay
- Reprocessing off-specification products
- Recycle / Re-use outside the installation
- Re-use of waste lubes
• Recycle lab samples
• Biodegradation of waste
• Stabilisation/solidification of waste
• Waste storage

9.4 Best available techniques

There is two types of BAT, those that concern the whole refinery (generic BAT), and more specific ones (BAT for process/activity).

9.4.1 Generic BAT

• Implement a solid waste management system (as part of the EMS). This includes:
  – annual reports of waste quantities
  – implementing a plan with measures for waste reduction including recycling and/or recovery
  – operating the WWTP so as to maximize performance, with the minimum of sludge production
  – implementing good housekeeping activities
• minimise oil spills and exclude oil spills that contaminate the soil (as part of the good housekeeping activities). This includes, among other things:
  – implementing a plan to exclude leakage from pipe-work and tanks (part of the EMS). This plan may include inspection, corrosion monitoring, leak detection instruments, double bottoms etc.
  – performing a risk analysis to rank in order of significance cases where an accidental leak may occur (elements to consider are the products in the tank/pipes, the age of the equipment, the nature of the soil and groundwater that would be affected). Priorities areas where impermeable floors are needed most. Produce a multiyear master plan to programme necessary steps.
  – designing new installations with the minimum of underground piping. In existing installations, include underground pipes in risk assessment process referred to above
• apply techniques to reduce solid waste generated within each specific process/activity

9.4.2 Specific BAT

The following processes are concerned with specific BAE

Catalytic cracking:
• reducing uncontrolled catalyst losses (to air, from ESP, product and slurry tank bottoms) by spent catalyst management. Applying benchmark performance of the FCCU.

Coking processes:
• enhanced separation of oily coke fines.

9.5 Recommendation for future work

An important issue when considering refinery waste is that there are still many differing definitions between countries, which makes comparisons of waste
difficult. Make a catalogue of types of wastes produced by refineries to make comparison easier and more accurate.

10 Non-ferrous metals industries

10.1 Importance of waste

The production of solid waste is a main environmental issue for primary aluminium. It is also an issue for the production of zinc and other metals producing wastes during the iron removal stages.

10.2 Waste data

Wastes arise from different stages of the production process such as from the metallurgical operations, the smelting process as well as from the off gas and waste water treatment.

The quantity of residues obtained is strongly dependent on the raw materials in particular the iron content of primary materials, the content of other non-ferrous metals in primary and secondary materials and the presence of other components such as silica etc.

A list of the different wastes produced for the different processes is given on page 166 in the BREF. Most of the materials listed there are recycled or reused within the non-ferrous metal industry itself as well as in other industries.

10.3 Waste minimisation techniques

For common processes to non ferrous metals:

10.3.1 Minimisation of residues from the metallurgical process

- A decrease of the quantity of residues can be obtained by the following measures:
  - Careful construction of the brick lining of the furnace
  - Continuous use of the furnace and thus minimisation of the variations in temperature
  - Short impact time of the fluxing agents
  - Avoidance of aggressive fluxing agents
  - Careful cleaning of furnaces and crucibles
  - Reduction of furnace agitation (rotation).

10.3.2 Minimisation of residues arising from the abatement system

- Drying of the smelter feed
- The eventual replacement of filter bags with modern.

10.3.3 Reduction of residue generated by the effluent treatment

- The use of different kinds of cooling systems.
10.3.4 Reduction of other residues arising from the production of non-ferrous metals

- Regular maintenance, repairs and preventive maintenance.

10.3.5 Recycling and reuse of residues from non-ferrous metal smelting processes

To achieve effective waste minimisation and recycling the following can be considered:

- Waste minimisation audits can be conducted periodically according to a programme.
- Active monitoring of materials throughput, and appropriate mass balances should be available. Monitoring should include water, power, and heat.
- There should be a good understanding of the costs associated with waste production within the process. This can be achieved by using accounting practices that ensure that waste disposal and other significant environmental costs are attributed to the processes involved and are not treated simply as a site overhead.

10.4 Best available techniques

The principles of BAT include waste prevention and minimisation and the reuse of residues whenever practical. The industry is particularly effective in these practices.

Basically the metals are divided into ten groups and described separately. For some of them, further information is given, about residues process, but there are not really specific BAT.

10.5 Recommendations for the future

Emission data for air, water and residues, together with energy use should be provided for the next revision of this document.

11 Iron and steel

11.1 Importance of waste

More than half of the input ends up as off gases and solid residues. That’s why solid waste management is one of the main environmental issues in this industrial field.

Because of the complexity of integrated steelworks, the main production steps (sinter plants, pelletisation plants, coke-oven plant, blast furnaces and basic oxygen steel making) are described separately:
11.2 Sinter plants

11.2.1 Waste minimisation techniques
- Recycling of by-products containing iron and carbon from the integrated works, taking into account the oil content of the single by-products (<0.1%).

11.2.2 Best available techniques

In descending order of priority:
Minimising waste generation
- Selective recycling back to the sinter process
- Whenever internal reuse is hampered, external reuse should be aimed at
- If all reuse is hampered, controlled disposal in combination with the minimisation principle is the only option.

11.3 Pelletisation plants

11.3.1 Best available techniques
- Minimising waste generation
- Effective utilisation (recycling or reuse) of solid wastes/by-products
- Controlled disposal of unavoidable wastes/by-products.

11.4 Blast furnaces

11.4.1 Best available techniques

In descending order of priority:
- Minimising solid waste generation
- Effective utilisation (recycling or reuse) of solid wastes/by-products; especially recycling of coarse dust from BF gas treatment and dust from cast house de-dusting, complete reuse of slag (e.g. in the cement industry or for road construction)
- Controlled disposal of unavoidable wastes/by-products (fine fraction of sludge from BF gas treatment, part of the rubble)

11.5 Basic Oxygen steel-making and casting

11.5.1 Best available techniques

In descending order of priority:
- Minimising waste generation
- Effective utilisation (recycling or reuse) of solid wastes/by-products; especially recycling of BOF slag and coarse and fine dust from BOF gas treatment
- Controlled disposal of unavoidable wastes
11.6 Electric Steel-making and casting

11.6.1 Best available techniques

In descending order of priority:

- Minimisation of waste generation
- Waste minimisation by recycling of EAF slags and filter dusts; depending on local circumstances filter dust can be recycled to the electric arc furnace in order to achieve a zinc enrichment up to 30%. Filter dust with zinc contents of more than 20% can be used in the non-ferrous metal industry
- Filter dusts from the production of high alloyed steels can be treated to recover alloying metals

12 Pulp and paper industry

12.1 Importance of waste

The main environmental issues associated with pulp and paper production are emissions to water, emissions to air, and energy consumption. Waste is expected to become a gradually increasing environmental issue of concern.

This BREF is divided into five main industrial processes:

12.2 Kraft pulp processing

12.2.1 Waste data

The production of kraft pulp generates various fractions of solid waste: inorganic sludge (dreg sand lime mud) from the chemical recovery; bark and wood residues from wood-handling; sludge from effluent treatment (inorganic material, fibres and biological sludge); dust from boilers and furnaces; rejects (mainly sand) from the wood handling; ashes and miscellaneous material (like building material). Many organic substances, which might be considered waste products, are burnt for energy recovery. This normally includes bark and wood residues and could include water treatment sludge.

12.2.2 Best available techniques

1. Minimisation the generation of solid waste and recover, re-cycle and re-use these materials as far as possible.
2. Separate collection of waste fractions at source and, if necessary, intermediate storage of residuals/waste to make possible an appropriate handling of remaining waste products.
3. Incinerating all non-hazardous organic material (bark, wood waste, effluent sludge, etc.) in an auxiliary boiler, specially designed for burning of moist, low calorific value fuels (as e.g. fluidised bed boilers).
4. External utilisation of residuals/waste as substitutes in forestry, agriculture or other industries, if possible.
12.3 The sulphite pulping process

12.3.1 Waste data

The production of sulphite pulping is related to the generation of different types of manufacturing specific wastes from which most can be utilised. The wastes arise from different stages of the production process such as debarking, chipping, screening, clarification of the cooking liquor, maintenance as well as from treatment of raw and wastewater.

12.3.2 Best available techniques

1. Minimisation the generation of solid waste and recover, re-cycle and re-use these materials as far as possible.
2. Separate collection of waste fractions at source and, if necessary, intermediate storage of residuals/waste to make possible an appropriate handling of remaining waste products (e.g. utilisation outside the plant)
3. Incinerating all non-hazardous organic material (bark, wood waste, effluent sludge, etc.) in an auxiliary boiler, specially designed for burning of moist, low calorific value fuels (as e.g. fluidised bed boilers)
4. External utilisation of residuals/waste as substitutes in forestry, agriculture or other industries, if possible.

To give an indication about the amount of solid waste that might be expected at sulphite pulp mills that apply BAT the example of an Austrian integrated bleached sulphite pulp mill operating an onsite waste incinerator can be mentioned. In this case, the remaining solid waste after incineration is 3.2 kg DS/Adt (100% DS) that can be further utilized. It is assumed that bark and other wood residues as well as the mixed sludge from wastewater treatment are burned. Energy (steam) is recovered for the pulp production.

A small amount of hazardous waste is generated in all mills. Such waste include oil and grease residues, used hydraulic and transformer oils, waste batteries and other scrap electrical equipment, solvents, paints, biocide and chemical residues, etc. Normally they amount to about 0.05–0.1 kg/t of product.

12.4 Recovered Paper Processing

12.4.1 Waste data

Most of the impurities from the processed recovered paper end up as waste. The major waste materials are rejects, different types of sludge and - in case of on-site incineration of residues -ashes. The major sources of solid waste in RCF based paper mills are stock preparation, process water clarification and wastewater treatment. Depending on used raw materials, process design and type of process and wastewater treatment respectively different amounts and qualities of residues (rejects, sludge) are generated. The residues have to be handled and treated (thickened and de-watered) to generate a residue with a high dry solids content. Achievable dry contents for rejects and sludge are compiled in Tables 5.13 and 5.14 in the BREF.
12.4.2 Best Available Techniques

To reduce the amount of solid waste to be put on landfills the following measures are considered as BAT:

1. Minimisation the generation of solid waste and recover, re-use and re-cycle re-usable materials as far as possible.
2. Separate collection of waste fractions at source and, if necessary, intermediate storage of residuals/waste, to allow for a greater proportion to be reused or recycled rather than put on landfills.
3. Optimising the fibre recovery by upgrading of stock preparation plants
4. Optimisation of the amount of cleaning stages in the stock preparation
5. Dissolved air flotation (DAF) to recover fibres and fillers and to clarify process water. In the design of stock preparation plant concepts (as mentioned in item 3 to 5) a balance between cleanliness of stock, fibre losses, product quality, energy requirements and costs have to found.
6. Anaerobic biological pre-treatment of waste water
   Compared to stand-alone aerobic waste water treatment combined anaerobic/aerobic treatment generates considerably less excess sludge
7. Efficient reject and sludge handling on-site (de-watering) to enhance dry solids content in order to improve the incineration properties. After de-watering of rejects and sludge, the dry solid content achieved depends mainly on the characteristic of the sludge and the technical equipment for de-watering. Higher dry solids usually mean less transport requirements and higher calorific value of the sludge that is especially interesting in case where the residues are burnt.
8. Reduction of the amount of waste to be put on landfills. Identification of possibilities for recovery operations and – if feasible – utilisation of waste for material recycling or incineration of rejects and sludge with energy recovery, if feasible.

Produced ash can often be used as raw material in the building materials industry. Different options for incineration of rejects and sludge are available. The applicability is limited by the size of the mill. In some cases (e.g. tissue mills), supporting fuels or adding of residues with higher calorific value (e.g. bark, wood waste) are required when the amount of land-filling is reduced by combustion techniques.

Depending on the quality of recovered papers used for production and the product properties to be achieved the amount of solid waste will vary. Both the processing of lower qualities of recovered paper and the manufacturing of higher paper qualities from similar raw materials result in an increase of rejects. Generally, the production of non-de-inked grades produced less amount of solid waste than the production of de-inked grades. Within de-inked grades relevant differences occur. For instance, for the manufacturing of printing and writing papers from recovered paper normally higher amounts of solid waste are generated than for newsprint, especially if wash-de-inking is necessary. For graphic papers, there is a trend to use better recovered paper qualities. For RCF based tissue production there is a need to wash out the fillers and fines by wash-de-inking. This process generates significant higher amounts of waste to be handled and further treated than for other de-inked paper grades.
No BAT associated levels of the amount of waste to be landfilled are presented because they depend mainly on the degree of utilisation, the treatment options chosen and the quality of the recovered paper used as fibrous raw material.

Additionally, there is little detailed and reliable information available on achievable amounts of solid wastes from RCF processing paper mills.

12.5 Papermaking and related processes

12.5.1 Waste data

Various types of waste are generated at paper mills according to the following different sources: rejects from stock preparation, sludge from water treatment, and other waste fractions.

12.5.2 Best available techniques

1. Minimisation the generation of solid waste and recover, re-use and re-cycle re-usable materials as far as possible.
2. Separate collection of waste fractions at source and, if necessary, intermediate storage of residuals/waste, to allow for a greater proportion to be reused or recycled rather than disposed on landfills.
3. Reduction of fibre and filler losses. Earlier and in old paper mills sedimentation tanks were the dominating technique. The separation efficiency can be improved considerably by a disk filter or a micro-flotation unit.
4. Recovery and recycling of coating wastewaters. The application of ultra-filtration for coating wastewater recovery has proven successful in many mills and minor or no negative effects have been reported on fine and art paper quality when using concentrate in pre-coating. In magazine paper mills small amounts of UF concentrate can be used without drawbacks in quality. However, a lot of technical and logistical aspects have to considered when applying this techniques which makes it difficult for smaller mills.
5. Pre-treatment of sludge (de-watering) before further utilisation or final disposal.
   Several techniques are available for de-watering of the residues and sludge. The resulting dry solid content depends on the characteristic of the sludge and the de-watering techniques applied. Higher dry solids usually mean less transport requirements and higher calorific value of the sludge that is especially interesting in case where the residues are burnt. In case of disposal, biological stabilisation might precede dewatering.
6. Reduction of the amount of waste to be disposed on landfills. Identification of possibilities for recovery operations and – if feasible – utilisation of waste for material recycling or incineration with energy recovery.
   In some cases, supporting fuel-s or adding of residues with higher calorific value (e.g. bark, wood waste) are required when the amount of land-filling is reduced by combustion techniques.
   The amount of waste to be landfilled depends mainly on the degree of utilisation and the treatment options chosen. The choice of the treatment options is influenced by factors as local infrastructure, costs and competition with residues from other industries. It should be noted that there is little detailed and reliable information available on achievable amounts of solid wastes.
13 Tanning of hides and skins

13.1 Waste data

As a general fact, the tanning industry is a potentially pollution-intensive industry. The solid waste consists of organic material such as protein, fat, dirt and process chemicals. The content and amount of waste generated and consequently the possible treatment options depend strongly on the types of processes used.

13.2 Waste minimisation techniques

Several options for the recycling or reuse of organic waste fractions are available:

- Gelatine and glue from un-tanned wastes can be produced; in some Member States un-tanned wastes are processed to produce sausage casings
- Tallow recovery from raw trimmings, fleshings and splits is performed in rendering plants. Limed trimmings, fleshings and splits may need pretreatment before conversion
- Fat can be separated and recycled, but this is practicable only exceptional cases
- Recovery of protein (protein hydrolysate) from e.g. splits. Collagen has various uses as meat and bakery product additives to rubber products
- Tanned wastes can be used in leather fibreboard production

Further treatment options for organic wastes and sludge from waste water treatment are composting, recycling in agriculture, anaerobic digestion, landfill and thermal treatment. The applicability of the techniques in sludge disposal depends on the composition of the sludge, especially the chrome content and has to be assessed on a case-by-case basis, taking into account national regulations and strategies.

Other residues may require further (off-site) treatment. This includes the following wastes: salt, organic solvent and chemical used as process chemicals, auxiliaries, cleanser, sludge from finishing, solids from air abatement (activated carbon, sludge from wet scrubbers) and packaging material.

13.3 Best Available Techniques

In waste management and treatment, BAT, in order of priority is:

- Prevention
- Reduction
- Re-use
- Recycling/recovery

Thermal treatment for certain types of waste.

Landfill is not BAT, although in some cases it is the only option available.

A large amount of waste, in particular organic waste, is inherent to production in tanneries. Both organic waste fractions and other residues can be prevented and reduced to a large extent by using BAT in the process units. Recycling options are numerous and carried out on site and off site. The potential for recycling should be exploited by ensuring segregation of wastes as by-products and co-operation between tanners to make recycling and re-use options economically feasible.
Waste that arises in the tannery has to be handled and stored in such a way as to avoid leaching, odour problems and emissions to air.

### 13.4 Recommendation for the future

There are some areas where data and information are missing:
- The quantity of chrome-contaminated and chrome-free wastes and sludge from waste water treatment
- The source, amount and type of residues in wastes from ovine skins and salted and fresh bovine hides

### 14 Textile processing

#### 14.1 Importance of waste

The main environmental issues arising from the activities in the textile industry which are covered regard primarily emissions to water and air and energy consumption. There is little information about waste management.

#### 14.2 Waste data

In textiles finishing industries, many different solid and liquid wastes are generated and have to be disposed of. Some of them can be recycled or re-used, whereas others are incinerated or disposed on landfills. There are also some wastes which (in few cases) are treated in anaerobic digesters.

Usually, most of the textile waste is recycled. Today, there are only a few mills that segregate high-loaded waste water streams, such as residual padding dyeing liquors and residual padding finishing liquors. Companies tend to apply these measures only when exceeding limits for COD, nitrogen or colour. Conversely, it is more common to dispose separately of residual printing pastes, in anaerobic digesters.

There are mills treating their waste water by flocculation/precipitation. The volume of sludge produced after dewatering (usually in chamber filter presses), including the water content (which usually 60–65%), is normally within the range 1–5 kg/m^3^ treated waste water. With a specific waste water flow of 100–150 l/kg, the amount of sludge to dispose of is 100–750 g/kg finished textiles.

#### 14.3 Best available techniques

**14.3.1 General BAT:**
- Collect separately unavoidable solid waste
- Use bulk or returnable containers.

**14.3.2 Specific BAT:**

For sludge from waste water treatment of wool scouring effluent, BAT is to:
- Use sludge in brick-making or adopt any other appropriate recycling routes
- Incinerate the sludge with heat recovery, provided that measures are taken to control emissions of SOx, NOx and dust and to avoid emissions of dioxins and furans arising from organically bound chlorine from pesticides potentially contained in the sludge.
### 15 Summary of waste management in the BREFs

In this chapter there is a table describing the authors own thoughts about the importance of waste issues compared to other environmental issues, how available the information of waste issues are, how well BAT in general and for specific processes are described. There are also some recommendations for the next update of the BREFs.

**TABLE: SUMMARY OF WASTE MANAGEMENT IN THE BREFS**

<table>
<thead>
<tr>
<th>Importance of waste compared to other environmental issues</th>
<th>Is waste data available?</th>
<th>General BAT available</th>
<th>BAT for specific processes</th>
<th>Recommendation for next update</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement and lime secondary</td>
<td>yes, limited</td>
<td>very short</td>
<td></td>
<td>survey of current techniques consumption is useful</td>
</tr>
<tr>
<td>Chlor-alkali minor issue</td>
<td>yes, short description</td>
<td>yes (for mercury and diaphragm processes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ferrous metals minor issue</td>
<td>yes, short description</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Glass secondary issue</td>
<td>yes, limited</td>
<td>yes, limited</td>
<td>only relevant techniques</td>
<td></td>
</tr>
<tr>
<td>Cooling systems minor issue</td>
<td>yes, limited</td>
<td>only relevant techniques</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large volume chemical industry important issue</td>
<td>yes</td>
<td>yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mineral oil and gas refineries important issue</td>
<td>yes, good description</td>
<td>yes (for catalytic cracking and coking processes)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-ferrous metals main issue for zinc and other metals concerned by the iron removal stages</td>
<td>yes, good description</td>
<td>relevant techniques are given for some processes</td>
<td>emission data should be provided</td>
<td></td>
</tr>
<tr>
<td>Iron and steel main issue</td>
<td></td>
<td>yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulp and paper secondary but gradually increasing</td>
<td>yes, good description for each process</td>
<td>yes, good description</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tanning of hides and skins relatively important issue</td>
<td>yes</td>
<td></td>
<td>missing data concerning chrome-related wastes, bovine skins, bovine hides</td>
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</tr>
<tr>
<td>Textile processing secondary</td>
<td>yes</td>
<td>very little information</td>
<td>very little information</td>
<td></td>
</tr>
</tbody>
</table>
Annex IV. WASTE PREVENTION IN THE ENVIRONMENTAL PERMIT PROCEDURE IN FINLAND

By Hanna Salmenperä, Finnish Environment Institute

(SUMMARY)

Waste prevention refers to preventive actions which lead to the reduction of waste volume or minimisation of the harmful effects of waste. Preventive actions can deal with raw-material acquirement, product design, production processes, skills of staff, use of hazardous substances, as well as packaging and storing.

The environmental permit procedure is a control instrument of a planned activity. It enables the setting of different obligations and limits concerning emissions. So far waste prevention has not been a significant issue in the permit procedure. It has not necessarily been considered a problem which could be solved through the process of granting a permit.

However, waste prevention should become an integral part of the permit procedure. For an environmental permit to be granted, an activity has to meet the requirements laid down by the Environmental Protection Act (EPA) (86/2000) and the Waste Act (1072/1993, amendments up to 893/2001) and the regulations issued under these laws. For waste prevention the Environmental Protection Act’s Section 5 of the general provisions and Section 4 of the Waste Act’s general duties of care are of crucial importance. According to Section 4 of the Waste Act:

As far as possible, care shall be taken in all activities to minimise generation of waste and to ensure that waste does not significantly hamper or complicate the organization of waste management, or result in hazard or harm to health or the environment.

Specifically:
1) the producer shall use raw material sparingly in production and substitute waste for raw material used;
2) the manufacturer of a product shall take care, and an importer likewise ensure, that the product is durable, repairable or re-usable, or recoverable as waste, and that the product does not, as waste, result in any hazard, harm, or complication referred to above.

According to the Environmental Protection Act and Section 4 of the Waste Act, there exists a theoretical possibility to set stipulations for the quality of a manufactured product. However, the conditions for granting a permit concern effects resulting only from the very activity. According to Section 3 of the EPA, an activity that poses a threat of environmental pollution refers to the founding or use of an installation, the use of an area or the arrangement of activities in such a way as may result in environmental pollution. Activities subject to the requirement of a permit are prescribed in detail in Chapter 1 of the Environmental Protection Decree (169/2000). According to Section 2 of the EPA, in the process of granting a permit an activity refers to all activities involved: the main activity as well as other activities which serve the main one and occur in the same site, and if technically and in terms of production they constitute a unity their environmental impact and waste management should be examined as a whole.

However, a product-centred way of thinking is not totally excluded from the permit procedure. In this case, the knowledge requirement included in the general provisions of Section 5 of the EPA as well as the duty to be well informed and keep a record laid down in Section 51 of the Waste Act are important. According to the EPA, operators must have sufficient knowledge of their activities’ environmental impact
and risks, and of the ways to reduce harmful effects. According to the Waste Act, a producer and a manufacturer or an importer of products should be sufficiently informed about the waste resulting from their production or product, its impact on health and the environment, ways of reducing its quantity and harmfulness, waste management, and possible ways to develop the production process or product as to reduce the quantity and harmfulness of the waste. The existence of the duty to be well informed and keep a record offers a possibility in the permit procedure to set obligations to produce an account not only on the production process but on the product, too.

There are also other ways to approach the issue of waste prevention in the permit procedure. In a permit application a party engaged in activity (operator) has to present the nature of the activity and its potential environmental impact after taking into consideration the application of the best available technique in the planning process. Best Available Technique (BAT) refers to methods of production and treatment that are as efficient and advanced as possible and technologically and economically feasible, and to methods of designing, constructing, maintenance and operation with which the pollutive effect of activities can be prevented or most efficiently reduced. However, so far BAT has not offered much guidance on the issue of waste prevention techniques and methods.

From the point of view of permit procedure there is most potential for waste prevention in industrial operations and less potential in mineral extraction, energy production, or waste and water management. On the other hand, it is not especially significant whether we deal with a big or a small-size enterprise. In the small and medium-size enterprise sector there is not necessarily enough knowledge or BAT for emission control.

The means of waste prevention in the environmental permit procedure

According to Section 28 of the EPA, an environmental permit is required for activities that pose a threat of environmental pollution and for any alteration of an activity that increases emissions or the effects thereof or any other material alteration of an activity for which a permit has already been granted. Activities subject to a permit are prescribed in detail by decree. A permit is granted if an activity follows the rules laid down by the EPA and the Waste Act and meets the conditions stipulated by or under these laws.

Hardly ever does a permit procedure form exactly the same pattern of activities which has to be followed. The permit procedure is influenced by the fact whether it is a first permit or a continuation one. The stages of the procedure are influenced by the nature of activity and its assessed essential environmental impacts. The permit authorities’ opinions, knowledge and course of action are also significant for the procedure. Therefore, there is not just one proper way to take waste prevention into account in the permit procedure. However, it is crucial to set waste prevention as one of the issues to be considered throughout each stage of the permit procedure. Not all work promoting waste prevention becomes visible in the permit conditions, although the permit authorities of course consider first what a permit should include. To this end discussions with a permit applicant and requests for further accounts are also important tools (see Figure 1).

It is not intentional to prolong the permit procedure with additional complicated work dealing with waste prevention. Waste prevention can also offer a possibility to implement an integrated emission management. In the permit procedure it should be attempted to assess as a whole emissions to atmosphere, water and ground and waste generated by an operation. Generation of waste
should be considered as an integral part of the emission problem. The use of less hazardous substances, prevention or minimisation of some waste generated, or development of material recycling within the production process can bring simultaneous effects in the quantity and quality of waste, and the consumption of energy or emissions into atmosphere and water. In spite of the term itself, waste prevention does not only refer to minimisation of solid waste but is a holistic act of environmental protection.

Figure 1. Means of taking waste prevention into consideration in different stages of the environmental permit procedure.

Permit application

Information on the nature of the activity and its impact on the environment to be included in the permit application needs careful consideration. The applicant and the permit authority should deliberate together upon the issue what information is important for granting the permit and advancing waste prevention. The essential background information on waste prevention to be included in the permit application embraces, among others:
1. General information on the activity
2. Information on production process, installations, buildings and location
3. Information on raw materials, chemicals, other materials and substances used in the production and operation process, the use of water and fuel; information on storage and preservation facilities, and transportation
4. Information on the annual generation of waste, its quality and properties
5. Environmental impact assessment
6. Assessment of a BAT for waste prevention to be applied in the stage of operation design
7. Report on actions to minimise waste and its harmful effects; actions to recover, recycle and transport waste, as well as information on where waste should be sent in order to be managed and recovered.
9. Information on the control and surveillance of the operation. Information on emissions to the environment and on the control of their impact, as well as on the monitoring and calculation methods, and the assurance of their quality.

In order to manage the flow of materials and give an overall view, the permit application should include a chart describing the process of material flow. Figure 2 presents the main idea of the material flow chart. With the help of such a chart it can be realised how much material is used for the production process, and what the relation between the material used in different stages of the production and the generated waste is. The chart includes a register of the quality and characteristic of the raw materials and the amount of the products and the volume of the waste resulting from the production processes. Although reporting on raw materials and waste is laborious, it is one of the central activities while seeking for waste prevention possibilities.

![Material Flow Chart](image)

**Figure 2.** The process chart can include many production stages, and waste resulting from one stage can possibly be utilised in some other one.

It has to be assessed with the help of the charts and data concerning quantity what materials are crucial and worth concentrating on in order to diminish their consumption. At this stage it is also important to realise which waste component costs most. For instance, a switch from hazardous substances into less hazardous or non-hazardous may result in diminished costs of waste management. The costs of waste management, however, do not reveal everything. The generated waste can in a way be considered as a raw material purchased by the company. From this point of view, waste involves the enterprise only in the increased costs of waste management. The overall price of waste embraces, among others, the cost of raw materials, the cost of handling the emissions coming from the production process, the cost of labour needed to organize and maintain waste management. Any diminished waste volume translates into savings in the aforementioned costs, and results in a greater number of produced goods.
Section 51 of the Waste Act - *the duty to be well informed and keep a record* – is essential for gathering background information on waste prevention. The permit authority can appeal to this legal article if there is no common understanding with the operator on the necessary background information to be presented.

At the end of this abstract a list of questions concerning waste prevention is presented. This list should be covered during a discussion between the permit authority and the operator.

**Permit consideration**

Site visits paid by the permit authority, discussions and negotiations with the permit applicant and other ways of communication, i.e. letters, emails and phone calls, give the authority a chance to talk about waste prevention issues and activate the enterprise to find out the possible ways of waste prevention. Communication during the permit procedure should not necessarily be a one-way flow of information but rather take the form of a discussion and a mutual exchange of ideas.

The roles of a permit and surveillance authority and an adviser can be easily combined. Communities and regional environment centres are also bound by the Waste Act to give advice on waste and waste prevention issues. The permit procedure has to consider matters which are or might be a subject to regulations (including waste prevention).

It is not the role of the permit authority to act as an expert. It is the operator’s own activity in waste prevention that is crucial, as the operator itself is the best expert in its own field. The permit authority should not underestimate the meaning of reciprocal actions for waste prevention. Even if discussions would not lead to a permit decision, the questions asked and the issues brought up might result in further consideration and later on lead to granting of a permit for an operation.

It is the permit authority’s role to bring up the issue of the effective use of raw materials and ask questions about the amount of generated waste and the possibility to its minimisation. The increase of reciprocal actions in the environmental permit procedure is one of the most important ways to promote waste prevention in industrial operations.

**Permit conditions**

According to Section 42 and 45 of the EPA, necessary regulations on waste, minimisation of waste volume and its harmfulness have to be included in a permit. Moreover, while drafting the permit regulations the following issues have to be taken into consideration: the overall environmental impact of an activity, the overall environmental impact of the actions meant for preventing the deterioration of the environment, and technical and economic possibilities to undertake such actions. The conditions concerning eliminating and diminishing emissions should be based on BAT. A permit should also include regulations on waste and waste management according to the Waste Act and provisions laid down under it.

A permit condition is an efficient tool for diminishing the environmental impact of an activity. The use of conditions concerning waste prevention has not been very common. Regulations on this issue have been general and to some degree conditional. The usual phrases used in such regulations are: “attempt should be made to minimise waste” or “attention should be paid to the fact that as little waste as possible is generated”. To some extent a duty to produce an account on waste prevention has been put into permit regulations. Moreover, environmental permits have included a provision to produce, together with an annual waste report, an account on actions undertaken during the passed year in order to minimise waste
volume and its harmfulness. It is possible that permit conditions which are of a general nature and do not set concrete goals nor give concrete figures to be followed in waste prevention, nor order background discussions with an operator, might not lead to specific actions in this field in the enterprise. On the other hand, also a general permit condition on waste prevention means taking this issue into consideration during the process of granting a permit and also later during the surveillance time.

If it is, however, possible an environmental permit should include as many detailed conditions as possible. Such conditions make permit surveillance easier and it is also clear for the operator what actions to minimise waste should be undertaken. It is essential that permit conditions do not limit the ability to compete and the production capacity. Additionally, permit conditions should not include any orders concerning technical solutions. The operator should be given a possibility to make a choice of a technique best suited for reaching a level/ or target ordered in the permit. Concrete conditions can also aim at diminished waste volume to be reached in a long enough period of time. Changes in the operation practice and processes take time. The duty to produce an account is a good way to start promoting waste prevention in the permit procedure.

Waste prevention measures

The environmental permit should set out sufficient conditions concerning the control of operation, emissions, waste and waste management, and monitoring the environmental impact of an activity during the operation stage and after closure. In order to implement control and monitoring, the methods and frequency of performing them should be dictated in the permit, as well as the ways of data analysis and ways of reporting the results to supervisory authorities. The operator can also be obliged to provide other necessary information needed for monitoring purposes.

There are no specific emission limits for waste laid down by legal acts and decrees. Because of the lack of clear measures for promoting waste prevention this matter can be difficult to be controlled during the permit procedure.

Specified waste generation is a measure which enables monitoring prevention of the quantity of generated waste. In the stage of permit application the operator should calculate the overall amount of waste per production unit, turnover or an employee. In this way, it is possible to monitor the increase of waste quantity in connection with the development of production. The observed changes in mere overall waste volume do not necessarily reveal the truth about the operation’s material use efficiency; or about the fact whether it has been managed to produce more or more effectively and generate less waste. By using specified waste generation the company’s production capacity is not influenced, neither is its ability to compete weakened. If there existed predominant in this field average specified waste generation, an authority could oblige an operator to reduce specified waste generation with 10–15% by year x if the operator’s specified waste generation would exceed the average level in this field. However, so far there is no specified waste generation relating to specific fields of operation.

Another possibility to measure waste prevention in the environmental permit procedure is to oblige an operator to investigate its specified waste generation and monitor it annually. A starting point would be a condition that the specified waste generation is not allowed to increase in future. In case it increases the operator would be obliged to produce an account on this matter. In this case, section 51 of the Waste Act can be appealed to: “waste holders shall be sufficiently well informed about the quantity, type, quality and origin…” and “holders of environmental permits […] shall keep a record of the quantity, type, quality and origin of all waste arising from their operations…” and “the supervisory or permit authorities
in individual cases […] can issue regulations and directions on compliance with the duty to be well informed and keep a record."

**Examples of permit conditions**

A permit condition concerning waste prevention can, for instance, be drafted in such a way that the objective to minimise waste deals either with the volume of generated waste or with some specific waste component essential because of its hazardous character. The permit condition can include an objective to minimise waste till the end of a given year, for example till the moment when conditions are controlled. Imposing the objective to minimise waste should be discussed with an operator during the course of granting a permit, and monitoring data of the quantity of generated waste should be supplied.

The amount of metal waste generated by an operation should be reduced in such a way, that waste volume generated in year x is 5% smaller than metal waste volume generated in year y. (WA 4§, EPA 4§)

Permit conditions can also prevent packaging waste resulting from an operation. The operator can influence packaging waste prevention in connection with purchasing raw materials and installations. It is worth being precise in the permit conditions stating activities to be undertaken by the operator.

In procurement of chemicals and raw materials multi-use or recyclable containers and packages should be used as much as possible and small-size and disposable packages should be avoided (WA 4§, State Council Decision 962/97)

Binding the waste minimizing stipulation to specified waste generation results in a concrete and feasible permit condition. The condition obliges an operator to produce an account on its specified waste generation and to monitor it annually.

Specified waste generation resulting from an operation (x kg/t of a produced product or a turnover or the employee number) shall be monitored annually. If the specified waste generation increases, the operator shall provide an account on the increase along with the annual report. (WA 4§, 51§, EPA 4§)

Enterprises continually purchase raw materials, machines, equipment and office accessories. By purchase choices it is possible to influence the minimisation of waste inside and outside the industrial operation. If the installation’s quality- and environmental management system does not include a set of directions meeting environmental criteria, a permit condition could include a stipulation stating that the company’s purchases should be supported by the development of a system of criteria leading to a reduced environmental impact.

Till the end of year x the operator shall develop purchase supporting criteria or a set of directions which apart from dealing with other activities essential for the operation shall also take environmental issues into consideration. (WA 4§, WA 51§, EPA 5§)

The duty to produce an account on waste minimisation is one good way to motivate the operator to consider activities for waste prevention in their own production process. The duty to produce an account can deal with one waste component or the overall quantity of waste. This kind of permit condition is recommended to be used if during the course of permit processing it has not been possible to concentrate on waste prevention, or if enough recent information concerning waste quantity is not available.
The operator shall provide the Environment Centre till the end of year x with an account on activities which enable minimisation of the overall quantity of waste generated by the operation. (WA 4§, WA 51§, EPA 5§)

Permit conditions can also oblige the operator to produce, along with the annual waste report, an account on activities undertaken during the passed year in order to minimise waste quantity and its harmful environmental effects. This type of condition motivates the operator.

The operator shall provide the Environment Centre, along with the annual report, an account on activities undertaken at the installation in order to minimise waste volume and its harmful environmental impact. (WA 4§, WA 51§, EPA 5§)

If the environmental permit application is submitted for the first time, all the environmental effects of the operation have to be covered in the permit procedure. Gathering background information for the permit application is time consuming. During the first course of permit application there might not necessarily be enough time to go deep into details of all environmental effects. During the second permit application all background information is already available and there should be enough time to concentrate on waste prevention. The first permit can already include conditions concerning the subsequent one, stipulating that in the process of permit conditions revision the operator is obliged to produce an account on undertaken activities for waste minimisation.

The operator shall submit by [date] an application for the review of permit regulations. The application shall include an account on activities for waste minimisation undertaken during the operation. (WA 4§, WA 51§, EPA 5§)

Sometimes the regulations concerning minimisation of the harmful effects of used chemicals could be drafted in a form of a duty to produce an account, as the operator might not have a possibility to influence the choice of a chemical because of the characteristics of a manufactured product.

The operator shall find out if it is possible to replace a “substance x” with a non-hazardous substitute till the end of year x. (WA 4§, WA 51§, EPA 4§, EPA 5§, The Chemicals Act 16a§)

The operator shall find out if it is possible till the end of year x to prolong the life-cycle of the chemicals used in the operation. (WA 4§, WA 51§, EPA 4§, EPA 5§, The Chemicals Act 16a§)

The manufacturer should be sufficiently aware of the manufactured product’s effects on the environment, as well as the quantity of generated waste per product and the opportunities to minimise its harmful impact. By auditing the product’s environmental effects during its life-cycle, emissions become a subject of control. Including monitoring of a product’s life-cycle or a similar activity of this type in the following permit application would be justified for some groups of products, for instance those ones which are used by consumers.

The operator shall submit by [date] a new application for the review of permit conditions. The application shall include monitoring of the life-cycle of the produced products or other corresponding account on the product life-cycle’s environmental effects. (WA 4§, WA 51§, EPA 4§, EPA 5§)
Examples for different fields of operation

Metal industry and surface treatment units

- The operator shall regenerate the operation’s surface treatment baths according to existing possibilities in order to prolong their period of use;
- The period of use of liquids used for operation shall be prolonged;
- Liquid wastes classified as hazardous shall be processed until they reach characteristics enabling a discharge into a sewer, or shall be recycled;
- The treatment of sludge resulting from pre-processing of wastewater shall be made efficient, e.g. by making drying more effective so that the content of dried sludge increases;
- Packaging for chemicals used at the installation, for example barrels, shall be cleaned and the hazardous substance shall be removed so that they can be re-used or recycled.

Food industry

- Water used for washing purposes at the installation shall be recycled;
- It is recommended to collect and recycle water used for flashing and cooling, and condensed water;
- A system for collecting leakage should be established at the installation;
- Disposable materials used at the installation (e.g. towels and waste cotton) should be replaced according to existing possibilities by durable materials.

Inspection

Inspection of the permit conditions is an important stage of permit procedure. Inspection usually concentrates on the documents submitted by the operator but it can also take a form of a discussion on the implementation of permit conditions and reaching the objectives set out by it. From the point of view of waste prevention, it is good if this issue is also discussed during the inspection stage. A permit authority can pay attention to the results of an investigation carried out owing to the duty to produce an account and discuss the schedule and implementation objectives of potential activities.

The relationship between environmental permit procedure and environmental management system

The quality systems and environmental management systems (EMS) embraces the most essential information on environmental impact. Information on the amount of waste generated by the activity and waste management usually constitutes the fundamental part of the EMS data. The gathered information on the increase or decrease of the waste amount possibly over many years is worth utilising in the process of permit application. Documents concerning EMS can be attached to the application or direct quotations from the EMS manual can be included in it. The biggest advantage of combining the EMS and permit procedure lies in the mutual utilisation of information.

The EMS usually sets out objectives and presents means for waste minimisation. The objectives can be quantitative, as for instance the amount of waste in year 2005 is supposed to be 20% smaller than this year; or qualitative, stating that till the end of a given year no waste that can be utilised is allowed in the landfill load. The shift of objectives as such into the permit procedure demands consideration and
discussion with the permit holder. If a set out objective is significant from the point of view of operation’s waste volume, the permit condition constitutes a stronger direction than the EMS. It can, however, happen that from the point of view of an enterprise a shift of the EMS objectives into permit conditions does not seem rational.

In some cases discussions conducted in the course of granting a permit may result in material and ideas that can be used in the EMS. It might occur that including individual actions that promote waste prevention in the permit conditions seem trivial. In this case the permit authority may suggest a shift of the actions proposals to be implemented under the EMS.

A list of questions to be followed by a permit authority

Preparation of an environmental permit application

1. Does the permit application include information on the material flow, production process and generated waste?
2. Is a process chart attached to the permit application?
3. Does the permit application include an account on activities undertaken in order to minimise waste and reduce its harmful effects?
4. Does the permit application include an account on activities which will be undertaken in order to minimise waste and reduce its harmful effects?
5. Does the permit application include waste volume monitoring data from the passed few years?
6. Does the permit application include basic information on the potential environmental management system and what objectives are set out there for waste prevention?
7. Is it possible to gather data through the EMS in order to utilise it in the permit application?

On the development of an operation

1. Is it possible to monitor the development of waste prevention with help of the development of specified waste generation (e.g., amount of waste (t) per manufactured product (t) or some other figure describing the production)?
2. Is it possible to substitute hazardous chemicals used in the production with non-hazardous substances?
3. Is it possible to substitute hazardous chemicals used in the production with some new methods?
4. Is it possible to take environmental issues into account while purchasing raw materials at the installation (e.g., chemicals in big containers or reduced use of disposable products)?
5. Would the staff of the installation need training and encouragement in careful use and maintenance of processes, devices and other activities?
6. Are re-usable packages used?
7. Would it be possible to minimise the amount of packaging waste resulting from the operation?
8. Does the operator apply the best available technique?
9. Would it be possible to minimise the amount of production waste?
10. Is it possible to purchase chemicals in re-usable containers?
11. Could the use of disposable products (e.g., towels and rags) be diminished?
12. Could the amount of hazardous waste be reduced with closed-cycles or by prolonging the period of use of chemicals?
Abstract

This is the final report of the European Implementation and Enforcement of Environmental Law (IMPEL) Network project "Waste-related Conditions in Environmental Permits". It presents the results of a seminar and the replies to a questionnaire sent out to 14 Member States and to one of the Candidate Countries.

The general principle of dealing with waste is stated in Article 3 of the European Council Directive of 15 July 1975 on waste (75/442/EEC) and in Article 3 (c) of the Council Directive 96/61/EC on Integrated Pollution Prevention and Control (IPPC). The general principles are prevention of waste, recovery of waste (firstly as material, secondly as energy) and safe disposal.

The overall objective of the project has been to identify difficulties and good practices when determining waste-related issues in the integrated permit procedure. Consequently the objective has also been to improve the implementation of the general principles and the requirements of waste management, with special focus on waste minimisation in the IPPC Directive and relevant waste-related directives.

The results are that specific EU-wide guidelines for the definition of waste, waste prevention, waste handling, waste recovery and waste disposal should be prepared. Good examples of permit conditions regarding prevention of waste, measures to minimise the waste amount, substituting raw material, records of waste, audits and assessments, plans and programmes, recycling or recovery, storage, handling and disposal are presented. It is also pointed out that the BREFs need to be revised in a way that takes waste-related issues better into account.

Keywords

Waste prevention, environmental permits, permit conditions, industry, IPPC, EU, directives
Tämmä on IMPER Networkin projektin "Jätteitä koskevat määräykset ympäristöluvissa" loppuraportti, joka perustuu 14 EU:n jäsenmaan ja yhden hakijamaan antamiin kyselyvastauksiin sekä aiheesta järjestetyn seminaarin tuloksiin.

Jätteiden käsittelyn yleisistä periaatteista on säädetty jätedirektiivin (75/442/EEC) artiklassa 3 ja IPPC-direktiivin (96/61/EC) artiklassa 3 (c). Nämä periaatteet ovat jätteen synnyn ehkäseminen, jätteen hyödyntäminen (ensisijaisesti materiaalina ja toissijaisesti energiana) sekä turvallinen loppusijoitus.

Projektin tavoitteina on ollut tunnistaa ongelmia ja hyviä käytännöllisiä ratkaisuja annettaessa jätteitä koskevia lupamuutoksia yhtenäisissä yhtenäisluvussa ja siten parantaa jätteitä koskevien yleisten periaatteiden sekä vaatimusten täytäntöönpanoa. Huomioista on kiinnitetty erityisesti IPPC-direktiivin ja jätteitä koskevien direktiivien niihin määräyksiin, joiden tavoitteena on jätteiden määrän vähentäminen.

Projektin tulosten mukaan erityisiä EU:n laajuisia ohjeita tulisi valita mm. jätteen määrätämisen, jätteen synnyn ehkäseminen, jättelyn käsittelevän, jättelyn uudelleenkäyttön ja jättelaitteiden loppusijoitukseen. Raportissa esitellään hyviä lupamuutokesimerkkejä jätteen synnyn ehkäsemisestä, jättelyn määrän vähentämisestä, raaka-aineiden korvaamisesta, jättelyn tilastomisesta, tarkastuksista ja arvioinnista, suunnitteluista ja ohjelmista, uudelleenkäytöstä, varastoinnista, käsitelyistä sekä loppusijoituksesta. Projektin aikana nousi esiin myös se, että BREF-asiajaeroissa jätteasiat tulisi huomioida nykyistä paremin.

Asiasanat
Jätteiden vähentäminen, ympäristöluvat, määräykset, teollisuus, IPPC, EU, direktiivit
Sammandrag

Detta är den slutliga rapporten för IMPEL Network-projektet "Tillståndsvillkor gällande avfall i miljötillstånd". Rapporten baserar sig på svaren från 14 EU medlemsstater och ett kandidatland till ett frågeformulär samt resultaten från ett seminarium.

Den allmänna principen för hantering av avfall är fastställd i artikel 3 i Avfallsdirektivet (75/442/EEC) och i artikel 3 i IPPC-direktivet (96/61/EC). De allmänna principerna är förhindrande av uppkomsten av avfall, återanvändning av avfall (främst som material, i andra hand som energi) och trygg deponering.

Projektets huvudmål har varit att identifiera svårigheterna och goda praktiska lösningar vid fastställande av avfallsrelaterade villkor i den integrerade tillståndsprocessen och sålunda förbättra implementeringen av de allmänna principerna och kraven på avfallshantering, med speciell fokus på minimeringen av avfall i IPPC direktivet och relevanta avfallsdirektiv.

Resultaten är att det krävs specifika rekommendationer för definition av avfall, förhindrande av att avfall uppkommer, avfallshantering och deponering av avfall. Goda exempel av tillståndsvillkor gällande förhindrande av uppkomsten av avfall, åtgärder att minimerer avfallsmängden, ersätta råmaterial, statistik av avfall, granskning och utvärdering, planer och program, återanvändning, lagring, hantering och deponering presenteras. Också BREF-dokumenten måste revideras så att avfallsrelaterade frågor bättre tas i beaktande.

Nyckelord

Avfallsminskning, miljötillstånd, bestämmelser, industri, IPPC, EU, direktiv
Waste-related Conditions in Environmental Permits

The main objective of this IMPEL project has been to improve and harmonise the implementation of the general principles and the requirements of waste management with special focus on waste minimisation in the IPPC Directive and relevant waste-related directives through the exchange of information and the provision of advice between Member States and Candidate Countries.

The project has concerned large industrial installations with the exception of landfills, incineration plants and agriculture. Under the project, the conditions of waste minimisation and management in integrated environmental permits and permit compliance were explored. The aim has been to address key issues and identify good practices for dealing with waste minimisation and management in the environmental applications and the permit procedure including monitoring and reporting requirements in the participating countries.

Some of the key conclusions:

• specific EU-wide guidelines for the definition of waste, waste prevention, waste handling, waste recovery and waste disposal should be prepared, having regard to, inter alia, the judgements of the European Court of Justice;
• good examples of permit conditions regarding minimisation of waste, measures to minimise the waste amount, substituting raw material, records of waste, audits and assessments, plans and programmes, recycling or recovery, storage, handling and disposal have been described;
• development of the BREFs in a way that takes waste minimisation better into account;
• encourage exchange of information between EMAS and OHS – occupational health system (ISO 18000);
• training for environmental authorities to raise the level of knowledge in waste issues and harmonisation of the reporting system within the EU for all the waste directives.

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