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A Strategy for Hazardous Waste Management in England

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Introduction

1. This Strategy has been conceived to underpin the practical application of the revised Waste Framework Directive 2008/98/EC (WFD) and in particular the requirements that apply to hazardous waste in relation to the waste hierarchy, the treatment of hazardous waste, and the provision of infrastructure.

What is hazardous waste?

2. Hazardous waste is waste that may cause particular harm to human health or the environment. Such wastes contain one or more hazardous properties. The European Commission defines hazardous waste and such wastes are currently asterisked in the European Waste List (Commission Decision 2000/532/EC). The list is subject to periodic review by the European Commission. Some everyday items such as computer monitors, TVs, refrigeration equipment and some batteries may be hazardous waste as well as more obvious materials such as asbestos and oil. Hazardous waste therefore comes from a wide range of sources, including households, businesses of all types, and public services, such as the health service, schools and universities.

Why do we need a strategy?

3. **Clarity** is needed on how the requirements of the revised WFD should be implemented, particularly the revised waste hierarchy with respect to the management of hazardous waste. The revised hierarchy has five steps which shall apply as a priority order in waste prevention and management legislation and policy: a) prevention; b) preparing for re-use; c) recycling; d) other recovery, e.g. energy recovery; and e) disposal.

4. The Strategy is also intended **to facilitate the provision of infrastructure for the management of hazardous waste**. Some 6.2 million tonnes of hazardous waste arose in England in 2008 and annex 1 provides more detail of the types and trends in hazardous waste arisings that need treatment. The Waste Strategy for England 2007 identified infrastructure and capacity needs for the treatment and disposal of hazardous waste. Consultation with the sector shows that those needs have changed over time and a summary of the updated assessed needs is included in annex 2.

5. Discussion with the Environment Agency and the waste sector in 2008 and 2009 has made it clear that there is still a need **to steer waste producers and waste managers** on the appropriate treatment for certain hazardous waste streams – especially those traditionally landfilled before the Landfill Directive (1999/31/EC) provisions came into force, such as oil and solvent contaminated waste residues, contaminated soils, air pollution control residues, acids and sludges. The data in annex 1 show the recent trend is for less hazardous waste to be landfilled and more treated and recycled, although some hazardous waste streams, such as contaminated soils continue to be landfilled and there was an increase in this waste stream to landfill in 2008 mainly as a result of waste from the Olympics

site. Further information on hazardous waste arisings trends and fates is on the Environment Agency's website[1].

6. It is recognised that investments in new treatment technologies require some **certainty** that the facilities will be used, and although in recent years there has been investment in above ground treatment systems, more may be possible with greater certainty of use. Furthermore, waste producers and waste managers have not always sought to push waste up the hierarchy – even where ultimately this can lead to cost savings such as in the prevention of hazardous waste, or in gaining value from recovered material. This is particularly important in the current economic situation.

7. The principal aim of the Strategy is to set out the Government's vision for improved hazardous waste treatment. It is expected that associated hazardous waste management practices and new infrastructure will meet existing regulatory requirements, including those of the revised WFD, the Integrated Pollution Prevention and Control Directive (2008/1/EC), and the Landfill Directive, and as a result help to secure **environmentally sound management of hazardous waste[2],** a concept set out in the UN Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal. Of particular note is the clear signal in the strategy to waste producers, waste holders and waste managers to adopt the revised waste hierarchy in the WFD to encourage options that deliver the **best overall environmental outcome** for their waste and **to secure protection of the environment and human health**.

8. The Strategy envisages that, in line with the Government's wider policies on resource efficiency, there is **a determined need to tackle climate change, and to take the opportunity to encourage the recycling of material or recovery of energy from hazardous waste** thus further reducing England's reliance on landfill, and help reduce carbon dioxide emissions from the manufacture of new products and the use of fossil fuels. Overall improved hazardous waste management has a part to play in a low carbon economy.

9. The Strategy for hazardous waste management in England complements Defra's approach to commercial and industrial waste more generally. It does not cover waste classified as radioactive waste under the Radioactive Substances Act 1993 (RSA) (except in the limited circumstances where such waste do not require an authorisation under that Act because it falls under an exemption order made under that Act), as they are dealt with separately by the RSA and Managing Radioactive Waste Safely MRWS programme.

Structure of the Strategy

[1] See: http://www.environment-agency.gov.uk/research/library/data/111318.aspx

[2] Environmentally Sound Management means taking all practical steps to minimize the generation of hazardous wastes and strictly controlling its storage, transport, treatment, reuse, recycling, recovery and final disposal, the purpose of which is to protect human health and the environment. See: http://www.basel.int/convention/basics.html

10. The Strategy comprises:

- Six high level **principles** for the management of hazardous waste.
- A set of **outline decision trees** to assist waste producers and waste managers to make the right decisions about the management of their waste and the investment in infrastructure to help move hazardous waste management up the waste hierarchy.
- A **timeline** of action on issues relating to the introduction and implementation of the strategy.
- A list of **guidance** relating to the treatment of hazardous waste.
- An updated summary of facility need.

11. The different parts of the Strategy are complementary. The principles are overarching, set the broad framework and should be the first point of consideration in decision making. The outline decision trees provide examples for the management of specific hazardous wastes and are intended to provide a supporting tool for decision making on hazardous waste management. It is recognised that supplementary guidance will add specific detail.

12. This Strategy does not seek to prescribe or set out in detail the treatment technique for every individual hazardous waste stream. Instead it seeks to set out a framework to help hazardous waste producers and hazardous waste managers find the best solution for their waste streams. It seeks to encourage a programme of facility development over the next 5-10 years. It is recognised that the Strategy would be complemented by the production of more detailed guidance for specific sectors, which will be worked up by Defra and the Environment Agency.

13. It is not envisaged that the Strategy will increase costs for hazardous waste producers or the hazardous waste sector more generally. This is because hazardous waste currently has to be treated in accordance with EU and domestic legislative requirements anyway and the Strategy principles are based on these existing and agreed requirements. Costs and benefits from the transposition of the WFD will be set out in the Impact Assessment for that Directive. Furthermore, hazardous waste that is disposed to landfill is subject to the Landfill Tax, which currently imposes a cost on hazardous waste producers. There will be potential savings where hazardous waste is diverted from landfill. In addition, evidence shows that techniques that lead to waste prevention, lead to costs savings. See for example work undertaken by the National Industrial Symbiosis Programme (NISP) in relation to hazardous and problematic waste streams[3].

Who has an interest in the Strategy?

14. The Strategy is aimed at the environmentally sound management of hazardous waste. The fulfilment of this objective is of interest to everyone - members of the public, local authorities, trade associations, businesses, non-governmental organisations and consumer groups. Virtually all businesses produce some hazardous waste.

[3] See: http://www.nisp.org.uk

Strategy for Hazardous Waste Management in England

15. The Strategy is formed of four parts: Part 1 lists a set of six principles for the environmentally sound management of hazardous waste; Part 2 contains outline decision trees to help waste producers and waste managers find the best management solution for their hazardous wastes; Part 3 is a timeline for implementation and Part 4 is a list of relevant Defra, Environment Agency and other guidance and proposed further guidance. Annex 2 comprises an updated assessment of facility need for hazardous waste management in England.

16. Each principle is based on a legal requirement stemming from European Directives, or a combination of these. Text from relevant parts of EU Directives and Decisions which support each of the principles is reproduced in Annex 3.

Part 1: Principles for the Environmentally Sound Management of Hazardous Waste

The following principles are set out to encourage the continued investment in England in new and more effective technology to manage hazardous wastes in an environmentally sound manner, as defined by the Basel Convention, and in particular to help waste producers and the waste industry to meet waste legislative requirements. The Government considers that the principles provide a framework promoting the best overall environmental outcome for hazardous waste management consistent with the Waste Framework Directive (2008/98/EC). They are supported by the Environment Agency who will use them to guide their approach on the permitting and enforcement of hazardous waste treatment facilities, and the application of other hazardous waste controls.

Principle 1 – the waste hierarchy

a. Hazardous waste should be managed by waste producers and waste managers in accordance with the EU waste hierarchy. In applying the hierarchy, hazardous waste producers and waste managers shall opt for hazardous waste management that takes into account the resource value of hazardous wastes, and the need for health and safety to be maintained and delivers the best overall environmental outcome. This may require specific hazardous waste

streams departing from the hierarchy where this is justified by life-cycle thinking on the overall impacts of the generation and management of such waste.

b. The hierarchy shall apply as a priority order in line with the Waste Framework Directive (2008/98/EC):

a. Prevention
b. Preparing for re-use
c. Recycling
d. Other recovery, e.g. energy recovery and
e. Disposal.

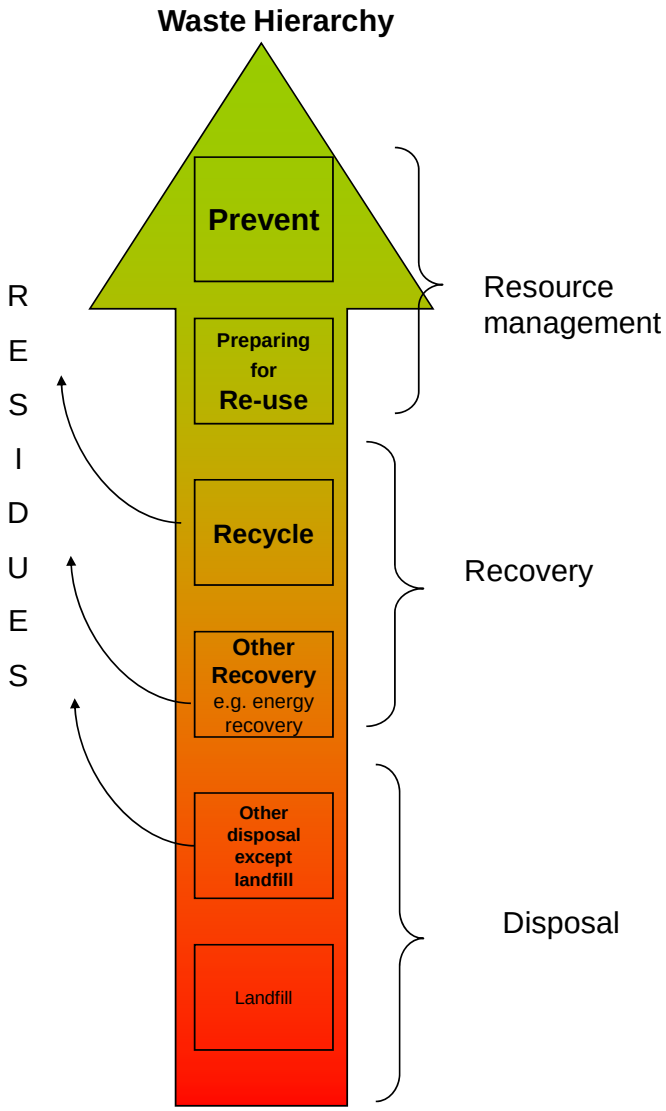
Prevention includes measures that reduce the adverse impact of hazardous waste on the environment and human health and reduce the content of harmful substances in materials and products before they become waste, as well as a reduction in the quantity of hazardous waste produced.

Legal basis and policy drivers for Principle 1

17. The basis of this principle is the waste hierarchy in Article 4 of the revised Waste Framework Directive (2008/98/EC) ("the WFD"). Article 4 requires the hierarchy to apply as a priority order in waste prevention and management legislation and policy. Furthermore, Article 15 of the revised WFD requires Member States to ensure that any original waste producer or other holder treats waste himself, or has the treatment handled by an establishment or undertaking in accordance with the waste hierarchy. Article 3 of the Integrated Pollution Prevention and Control Directive (IPPC) also requires competent authorities to ensure that the permits of installations subject to IPPC apply the hierarchy.

18. Figure 1 shows the waste hierarchy for hazardous waste management as supported by the principles, with waste prevention at the top and disposal at the bottom. Certain processes in the hierarchy can produce residues, which in turn should be managed in accordance with the hierarchy.

Figure 1 The Waste Hierarchy



19. When applying the waste hierarchy, Member States are required to take measures to encourage options that deliver the best overall environmental outcome (BOEO) for all waste, including hazardous waste. In order to deviate from the hierarchy, robust evidence would have to be provided that showed in life-cycle thinking that there were benefits in terms of the impacts on the generation and management of such waste. The BOEO is thus seen as a broad concept steering overall waste management, and is only applicable to an individual waste stream when deviating from the established hierarchy.

Practical application

20. Government is in the process of transposing the revised Waste Framework Directive. Article 4 of the revised Directive requires Member States (MS) to apply the hierarchy in waste prevention and management **legislation and policy**, and

Article 15 requires MS to ensure that waste producers apply the waste hierarchy to the waste they produce. Options being suggested include embedding the hierarchy more clearly in the waste permitting and waste planning processes, such as already exists for IPPC installations or applying it through the duty of care.

21. Where the production of hazardous waste cannot be prevented, opportunities for recycling and recovery should be fully investigated with disposal being the last option for consideration.

22. Landfill is the disposal option of last resort, and is at the bottom of the hierarchy. Deep underground storage of hazardous waste which is also a disposal operation, and is permitted in the UK as a landfill operation, is an option for certain difficult-to-manage hazardous waste streams such as metallic mercury[4] (where permitted) or air pollution control residues. High temperature incineration without energy recovery is also a disposal operation, but may be a better treatment option than landfill for certain intractable waste streams. Energy recovery as either a waste recovery operation or a waste disposal operation should be of a higher priority order than either disposal by incineration without energy recovery or landfill.

23. Where prevention (in the hierarchy) refers to the reduction of harmful substances, it is only applicable to materials and products other than waste.

24. The outline decision trees for the management of hazardous waste (see Part 2 below) are based on the hierarchy, and these give further assistance to waste producers and managers.

Principle 2 – Infrastructure provision

We look to the market for the development of hazardous waste infrastructure, which implements the hierarchy for the management of hazardous waste and meets the needs of the UK to ensure that the country as a whole is self sufficient in hazardous waste disposal, facilities are put in place for hazardous waste recovery in England, and the proximity principle is met.

Legal basis and policy drivers

25. Article 10 of the revised WFD requires Member States to ensure that waste undergoes recovery operations in accordance with the waste hierarchy in Article 4 and without endangering human health or the environment (Article 13). The revised WFD also restates the principles of proximity and self sufficiency. Article 16 requires that a network of waste disposal installations is available to enable the Community as a whole to be self-sufficient in waste disposal, including

[4] EC Regulation 1102/2008 on mercury provides derogations from the controls in the Landfill Directive to enable the safe storage of metallic mercury.

hazardous waste disposal, for MS to move towards that aim individually, and to enable waste to be disposed of in one of the nearest appropriate installations. The UK applies this principle of self sufficiency through the general prohibition on shipments of waste to and from the UK for disposal which is set out in the UK Plan for Shipments of Waste[5].

26. The Waste Shipments Regulation ((EC) No 1013/2006) (WSR) provides grounds for competent authorities (EA for England and Wales) to raise objections to shipments of waste. There are stronger grounds for refusal of shipments for disposal (Article 11), for example where such shipments are contrary to a waste management plan under the WFD – such as the UK Plan for Shipments of Waste.

27. For shipments for recovery, under certain circumstances, competent authorities can object to shipments where the planned shipment would be contrary to the waste hierarchy (Article 12(i)(a)), the planned recovery would be in a facility which has lower treatment standards for the particular waste than those of the country of dispatch (Article 12(1)(c)), or where the waste is proposed for treatment in a facility subject to IPPC but which does not apply best available techniques (Article 12(1)(i)).

28. In terms of inter-regional movements of hazardous waste, the Waste Strategy for England 2007 acknowledged that the regional distribution of hazardous waste facilities could more closely match regional arisings, to reduce the number and length of these movements of hazardous waste. The aim is not to move to complete regional self sufficiency for hazardous waste management, which is not required by the WFD and is unrealistic, not least because some hazardous waste facilities provide a national need. Waste Strategy 2007 also made an assessment of facility needs for hazardous waste management in England[6], and in the light of consultation with the sector, this needs assessment has been updated and is included in Annex 2.

Practical application

29. Market investment in the provision of infrastructure for the treatment of hazardous waste requires some certainty that the facilities will be used. This comes to some extent from the application of all the principles in this strategy, especially the waste hierarchy, but also through the permitting process, enforcement activity of the Environment Agency and, for new infrastructure, the planning system.

30. The EA is also the competent authority for the waste shipment controls in England and Wales, and the UK Transfrontier Shipment of Waste Regulations 2007 working in conjunction with the UK Plan for Shipments of Waste require UK competent authorities to object to shipments for disposal thus providing for UK national self sufficiency in the disposal of waste.

31. For shipments of hazardous waste for recovery, facilities in the UK compete with those in Europe and the rest of the OECD[7], as hazardous waste can be exported

[5] See: http://www.ni-environment.gov.uk/waste-shipments.pdf
[6] See: http://www.defra.gov.uk/environment/waste/strategy/strategy07/pdf/waste07-annex-c9.pdf
[7] Organisation for Economic Cooperation and Development

for recovery to the EU and other OECD countries. Such shipments are subject to prior notification and consent from the competent authorities of destination and despatch. Where evidence is presented to a competent authority concerning a proposed shipment of hazardous waste for recovery that shows grounds for objection exist under Article 12 of the WSR (see paragraph 27 above), then the competent authority can raise an objection to that shipment to prevent it happening. Defra will consult with the devolved administrations, the competent authorities and other stakeholders on an amendment to the guidance supporting the UK Plan for Shipments of Waste to clarify the situations where this might arise in relation to the contraventions of the waste hierarchy.

32. Whilst waste may be exported for recovery, in general there will be additional transport and shipping costs involved, as well as the costs of complying with the waste shipment and dangerous goods controls. Any recovery must be in plant which meets EU requirements – that means environmentally sound management and in practice a plant that applies best available techniques.

33. The planning system is pivotal to the adequate and timely provision of facilities for hazardous waste recovery and disposal close to where that waste arises, although hazardous wastes are required to be moved between regions to facilities that support national or multi-regional need. Responsible regional authorities and waste planning authorities are expected to plan for the volume of hazardous waste arisings in their area. National planning policy for waste, which is set out in Planning Policy Statement 10: Planning for Sustainable Waste Management (PPS10), contains guidance for regional and local authorities on searching for and deciding which sites and areas to identify for waste management facilities, including hazardous waste facilities.

34. Under the Planning Act 2008, Government is developing a National Policy Statement on hazardous waste to assist the new Infrastructure Planning Commission (IPC) to consider applications for facilities that provide for the recovery or disposal of hazardous waste in England. In the case of hazardous waste, this means new plant whose main purpose is the final recovery or disposal of hazardous waste, with a permitted hazardous waste throughput capacity in excess of 30,000 tonnes per annum or, in the case of hazardous waste landfill or deep storage facility for hazardous waste, a permitted hazardous waste throughput or acceptance capacity in excess of 100,000 tonnes per annum. For alterations to existing plant, the relevant thresholds are an increase in capacity of 30,000 tonnes per annum or 100,000 tonnes for landfill.

35. Whilst National Policy Statements will set out national policy on nationally significant infrastructure development, applications for developments below the thresholds will continue to be considered by waste planning authorities under the existing planning system. However, NPS principles may ultimately feed through to the consideration of planning applications for facilities below the thresholds.

Principle 3 – Reduce our reliance on landfill

We must continue to reduce our reliance on landfill for hazardous waste, which should only be used where, overall, there is no better recovery or disposal option.

Legal basis and policy drivers

36. This principle is based on the agreed waste hierarchy in Article 4 of the revised WFD. Landfill is bottom of the hierarchy. It represents a lost opportunity for the recovery of materials or energy. It can lead to longer term contamination of air, land and water. Recital 8 of the Landfill Directive also calls for a reduction in reliance on landfill. Although there is a place for a relatively small amount of landfill in hazardous waste management, for most wastes, other methods of hazardous waste management provide a better environmental outcome.

Practical application

37. As for principle 1, this will be achieved through the application of the waste hierarchy in waste management legislation and policy. Other drivers include the landfill tax and the associated escalator which discourage landfill. As mentioned in Defra's Soil Strategy for England "Safeguarding our Soils"[8], the removal of the landfill tax exemption for contaminated soils is likely to be already driving an increase in planned treatment. This is welcome as the latest data shows that a considerable proportion of Chapter 17 hazardous wastes (construction and demolition wastes, including soil) continues to be landfilled. The stringent technical requirements that apply to hazardous waste landfill are also a driver to divert hazardous wastes from landfill, for example through the application of the waste acceptance criteria. The planning system already has a role in restricting the availability of landfill.

Principle 4 – No mixing or dilution

Where hazardous waste cannot be prevented, waste producers and waste managers:

a. shall not mix different categories of hazardous waste, or mix hazardous waste with other waste, substances or materials, unless under the terms of an environmental permit, and the mixing operation conforms to Best Available Techniques, (as identified in Article 2 of the Integrated Pollution Prevention and Control Directive)

[8] See: http://www.defra.gov.uk/environment/quality/land/soil/documents/soil-strategy.pdf

b. shall not treat hazardous waste by the dilution of hazardous substances and,
c. must keep organic hazardous waste fractions separate from other streams to assist with their subsequent management in line with the hierarchy.

Legal basis and policy drivers

38. This principle stems directly from provisions in the revised WFD. Article 18 restates the ban on mixing hazardous waste, except under the terms of a permit.

39. Dilution is expressly prevented by the revised WFD (Articles 7(4) and 18) which states that "the reclassification of hazardous waste as non-hazardous waste may not be achieved by diluting or mixing the waste with the aim of lowering the initial concentrations of hazardous substances to a level below the thresholds for defining waste as hazardous." This is supported by the Landfill Directive which prohibits dilution to meet WAC for hazardous waste or stable non reactive hazardous waste landfill.

40. Article 18(1) prohibits the mixing of different categories of hazardous waste. Organic and inorganic hazardous wastes by their nature will be different categories, so should be kept separate. Organic constituents in hazardous waste landfill mobilise other substances, and thus could be regarded as harmful. Where organic wastes are biodegradable, LFD Art 5(1) applies to require their diversion from landfill.

Practical application

41. Hazardous waste producers and managers must consider hazardous waste prevention and where hazardous waste is produced, keep it segregated from non-hazardous waste as well as keeping different categories of hazardous waste separate, such as inorganic and organic hazardous wastes. The Hazardous Waste (England and Wales) Regulations 2005[9] put in place the mixing ban, including obligations on hazardous waste producers.

42. Compliance with and enforcement of the Hazardous Waste Regulations will help achieve this principle, and the Regulations will need to be amended to fully reflect the requirements of the revised Waste Framework Directive. Hazardous waste producers and managers are responsible for meeting the requirements of the regulations and waste operators can identify concerns about management of hazardous waste to the regulator to help improve compliance. The Environmental Permitting Process will also provide the means for achieving the principle for example by ensuring the application of best available techniques.

43. It is important to distinguish between organic and inorganic waste in the context of this principle and guidance on this point may be considered helpful. This will also be relevant for the outline decision trees in Part 2 of the strategy and to principle 5.

[9] S.I. 2005 No 894

Principle 5 – Treatment of hazardous organic wastes

Hazardous organic wastes that cannot be reused, recycled or recovered shall be subject to destruction using best available techniques, with energy recovery for all appropriate treatments. No hazardous organic waste shall be landfilled unless the requirements of the Landfill Directive are met.

Legal basis and policy drivers

44. The main driver for this principle is to encourage the management of hazardous organic wastes higher up the waste hierarchy. Treatments which destroy or irreversibly transform the hazardous substances in waste, including thermal treatment with energy recovery, even where this is a disposal operation, are a better management option than landfill. However, it is recognised that not all existing thermal treatment plant currently employ energy or material recovery. Thus the principle requires all new thermal treatment to use energy recovery and all existing thermal treatment to have it retrofitted through improvement plans under environmental permits. Where there is no energy or material recovery from the thermal treatment, then such treatment falls further down the hierarchy. Thermal treatment in this context is not meant to refer exclusively to high temperature incineration, but includes other alternative thermal treatments, including for example pyrolysis, gasification, vitrification, thermal desorption, or thermal depolymerisation. Other techniques could include biological treatment.

45. In addition to the application of the waste hierarchy, certain organic wastes are banned from hazardous landfill as a result of the waste acceptance criteria and the limits on total organic carbon. Thus there are legal requirements stemming from the landfill WAC.

46. Some organic constituents in hazardous waste landfill mobilise other substances, and thus could be regarded as harmful, which would contravene the fundamental aim of the LFD (Article 1) and Article 17 of the WFD which requires storage and treatment of hazardous waste to be carried out in conditions protecting the environment and human health. Where organic wastes are biodegradable, LFD Art 5(1) applies to require their diversion from landfill. This principle is linked to principle 4c.

Practical application

47. The permitting of hazardous waste treatment plant and hazardous waste landfills will be a central element of this principle. In addition, the waste hierarchy will be applied as a priority order in waste management legislation once the revised WFD is fully transposed. As for principle 4, a definition of organic in guidance is considered helpful to support this principle. A broad definition of hazardous organic waste is thus included in the glossary of terms. It is recognised that this definition may have to be developed further in close consultation with the regulator and the hazardous waste sector.

Principle 6 – End reliance on the use of Landfill Directive waste acceptance criteria derogations

The practice of relying on higher Landfill Directive waste acceptance criteria (derogation for 3x WAC) to enable hazardous waste to continue to be landfilled must end.

Legal basis and policy drivers

48. The Council Decision establishing the waste acceptance criteria (2003/33/EC) provides for derogations for up to three times WAC for specific parameters, notably heavy metals and some salts. Defra and EA have stated that use of such derogations is temporary, and that reliance on them should be phased out over time (statement of 23 July 2008). This principle echoes that policy position.

49. Continued use of the derogations is a disincentive to alternative treatment being put in place and continues to encourage the landfilling of hazardous waste, which is contrary to proper application of the waste hierarchy.

Practical application

50. There are currently five three times WAC derogations in force for the following types of wastes: bottom ashes, fly ashes, slags, sludges, treated residues from APC conditioning and some filter cakes.

51. It is not envisaged that the current use of these three times WAC derogations will stop immediately, but instead will be a phased process to coincide with the development of alternative treatment. It is recognised for example, that too sudden a change might lead to the production of “problematic wastes” that have neither an alternative treatment available nor a place in landfill. EA lead on the process whereby WAC derogations are granted, and will phase them out using the permitting process. EA will develop a clear timetable and plan of action for each one with industry that enables the development of alternative treatment and minimises risk to human health and the environment.

52. In some circumstances, it may be preferable to store wastes temporarily, under conditions that protect the environment and human health, in cases where a new treatment technology is being developed and implemented, rather than to continue landfilling such waste under the three times WAC derogation. Any storage would have to be on a strictly temporary basis, carried out under conditions that protected the environment and human health, and would have to be assessed on a case by case basis. Such storage would only be allowed where there were specific and verifiable plans to develop alternative treatment, but for example where the treatment facility was not ready and operational.

Part 2: Outline Decision Trees for the Treatment of Hazardous Waste

53. Decision trees have been developed to support the Strategy for Hazardous Waste Management in England. They support the strategy objective of raising the bar of hazardous waste management through using the waste hierarchy to encourage recycling and recovery, and reducing reliance on landfill.

54. The foundation of improved waste management is the segregation of waste streams to facilitate recycling and recovery. This must start at producer level with source segregation on-site, and in the absence of this, must be the first step of any treatment. As noted above, Article 15(1) of the revised WFD requires Member States to ensure that "**any original waste producer or other holder carries out the treatment of waste himself or has the treatment handled by a dealer or an establishment or undertaking which carries out waste treatment operations...in accordance with [Article 4]... (the waste hierarchy)**". Article 3(14) defines "treatment" as "recovery or disposal operations, **including preparation prior to recovery or disposal**". Thus it is recognised that without stream segregation, compliance with the waste hierarchy is more difficult to achieve and will not deliver the best overall environmental outcome.

55. There are four decision trees for:

- All hazardous wastes (Figure 2)
- Hazardous articles (Figure 3)
- Organic waste streams (Figure 4)
- Inorganic waste streams (Figure 5)

56. The decision trees should be applied to a waste stream on a case by case basis. They are not intended for the **direction** of waste to specific treatment options, but are intended to help with the implementation of the waste hierarchy.

Associated guidance to facilitate the use of the decision trees will be developed.

57. For all operators of processes (including waste management processes), the prevention and reduction of wastes, and efficient segregation must be a primary consideration.(see box below):

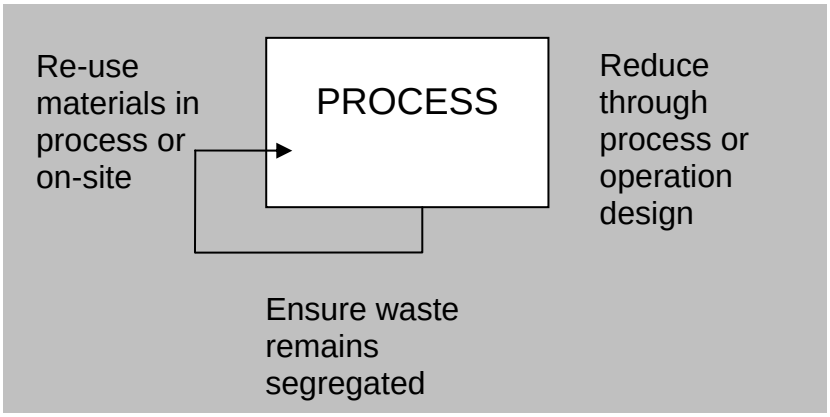
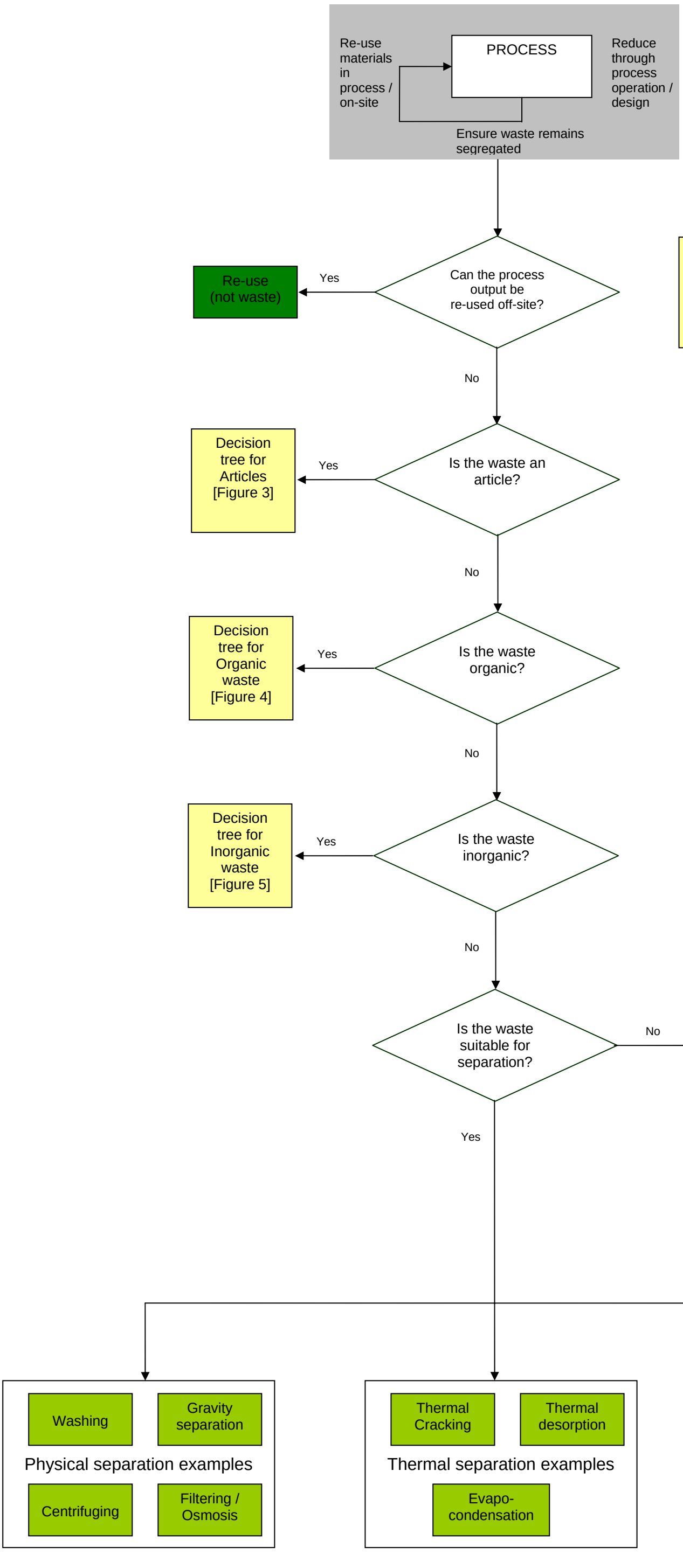


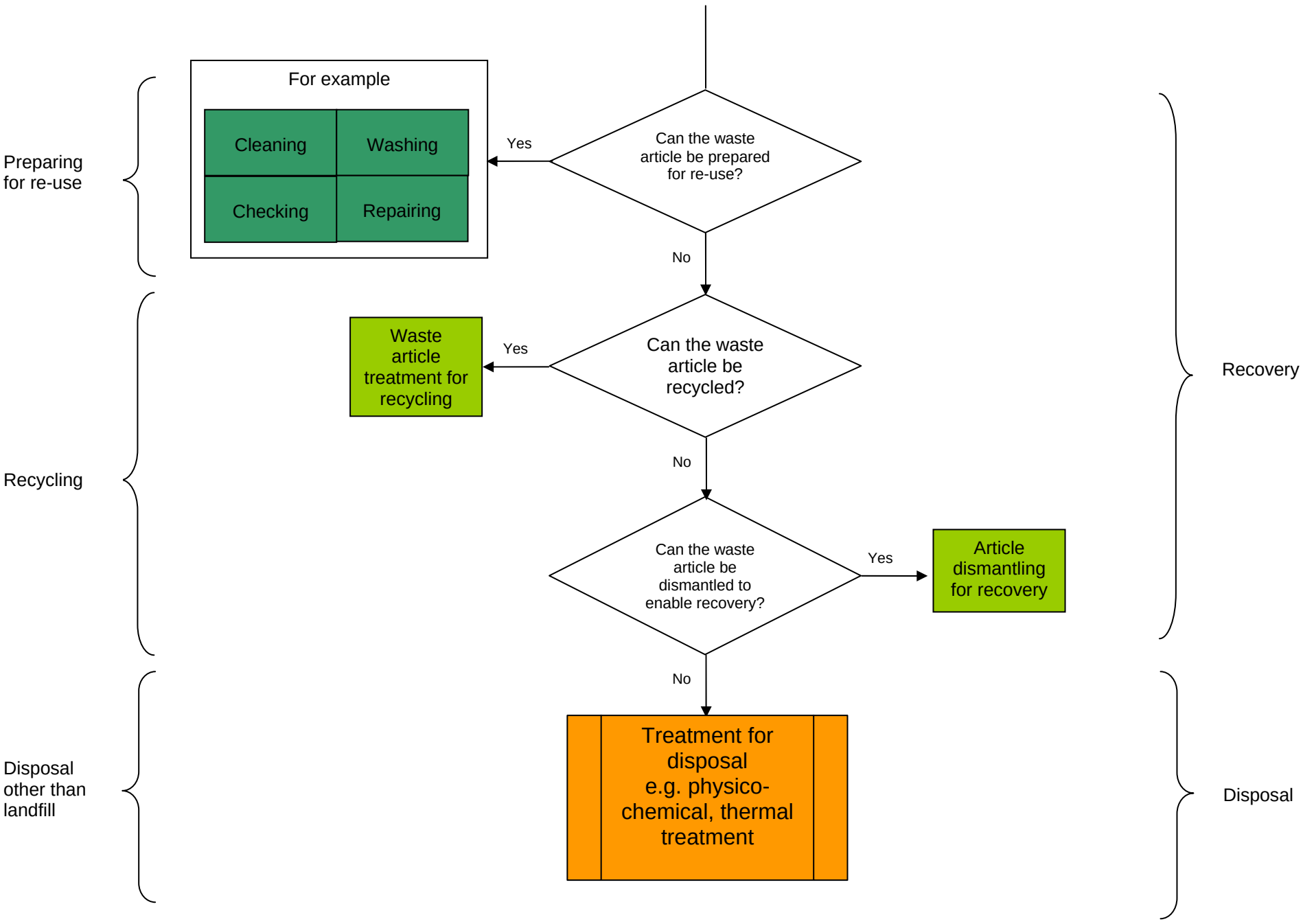
Figure 2
Decision Tree for all Hazardous Waste (not applicable to non-hazardous wastes)



Where a waste is pre-treated or separated, the residues from that activity are considered to have been produced by a PROCESS. Decision tree Figure 2 should be reapplied to the residues of these processes, if they are hazardous.

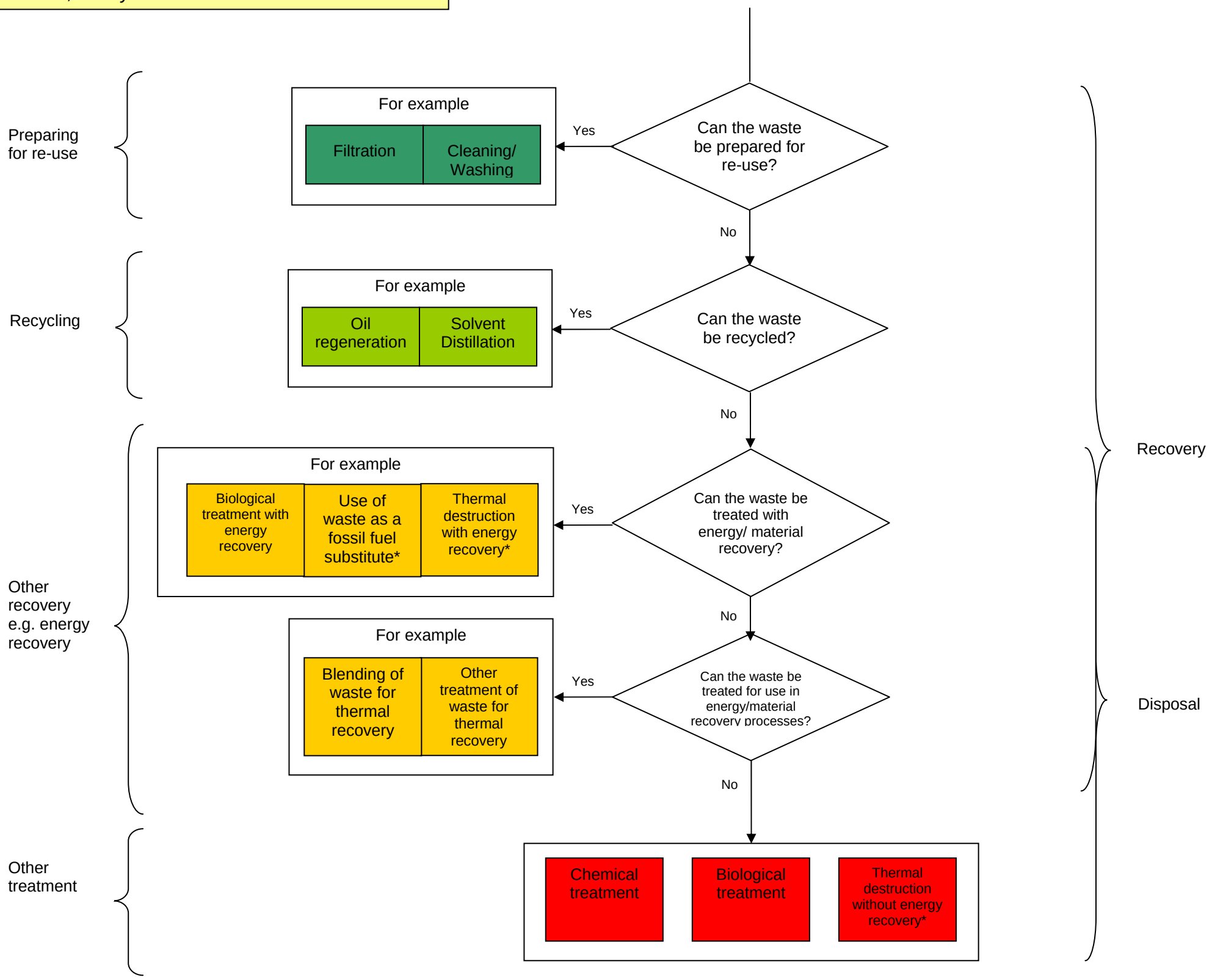
Where a waste is prepared for re-use, recycled, or treated for disposal, the residues from that activity are considered to have been produced by a PROCESS. Decision tree Figure 2 should be reapplied to the residues of these processes, if they are hazardous.

Figure 3
Waste Decision Tree for Hazardous Waste Articles



Where a waste is prepared for re-use, recycled or blended / treated for recovery or disposal, the residues from that activity are considered to have been produced by a PROCESS. Decision tree Figure 2 should be reapplied to the residues of these processes, if they are hazardous.

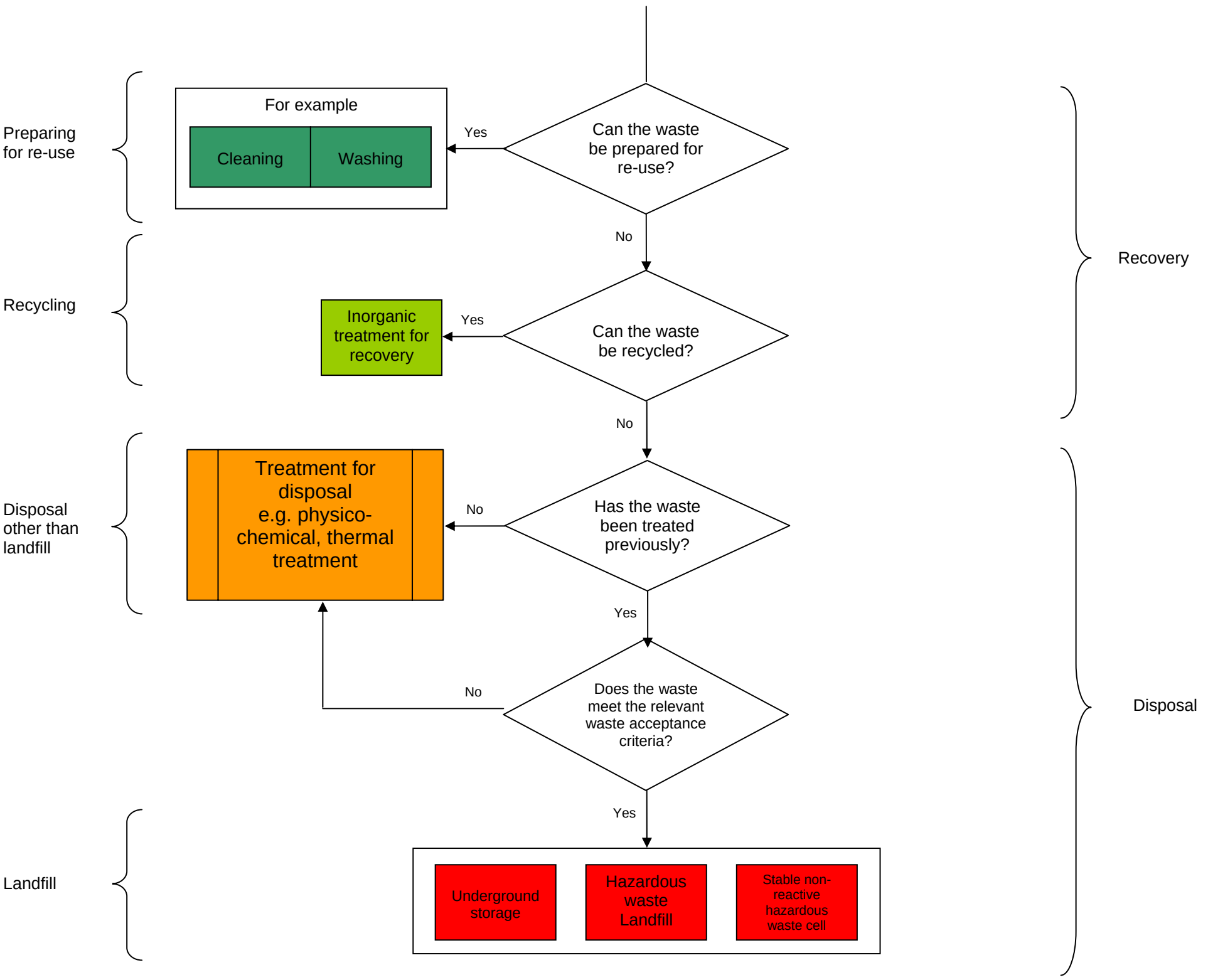
Figure 4
Waste Decision Tree for Hazardous Organic Waste



* Thermal recovery and disposal treatment processes, such as use of waste as a fossil fuel substitute, thermal destruction with energy recovery and thermal destruction without energy recovery must be compliant with the requirements of the Waste Incineration Directive.

Where a waste is prepared for re-use, recycled, or treated for disposal, the residues from that activity are considered to have been produced by a PROCESS. Decision tree Figure 2 should be reapplied to the residues of these processes, if they are hazardous.

Figure 5
Waste Decision Tree for Hazardous Inorganic Waste



Part 3: Timeline for Implementation of the Strategy for Hazardous Waste Management in England

58. EU Member States are required to transpose the revised Waste Framework Directive (WFD) by 12 December 2010. Defra has conducted a separate first stage consultation on how that transposition should proceed in England for significant and key aspects of the revised Directive. This includes on how the revised waste hierarchy should be applied to waste producers, to permit applications for the treatment of waste and also to existing waste permits and authorisations. Responses to that consultation will also inform how this proposed strategy is realised. There is no doubt, however, that the waste hierarchy is required to apply in those circumstances.

59. It is recognised that it will take time for this strategy to be fully realised. Planning, development and implementation of infrastructure takes time. Investment funding needs to be secured, sites, identified, plans drawn up and the necessary permissions: development consents and environment permits obtained. The development of a National Policy Statement on hazardous waste will assist the provision of infrastructure.

60. It is proposed that the impact of this new strategic approach be assessed after 5 years, in 2015, to see if further action or refinements are needed to ensure the continued provision of infrastructure and the successful management of hazardous waste. This is not envisaged to be a fundamental review or lead to a reduction in the requirements but a “temperature check” to ensure that the strategy is working.

Key dates

First formal consultation on revised WFD transposition in England – July 2009

Consultation on Strategy for Hazardous Waste Management in England -- July 2009

Strategy for Hazardous Waste Management in England published – March 2010

Second detailed consultation on revised WFD transposition – 2010

Issue of draft National Policy Statement for Hazardous Waste for consultation – 2010

Expected designation of National Policy Statement for Hazardous Waste – 2011

Progress check on the Strategy for Hazardous Waste Management in England – 2015

Part 4. Defra, Environment Agency and other guidance

Existing guidance

Hazardous Waste - Interpretation of the definition and classification of hazardous waste (see: http://www.environment-agency.gov.uk/static/documents/GEHO0603BIRB-e-e.pdf)

HWR06 Classifying and coding wastes from physico-chemical treatment facilities (version 4.0 June 2008). (see: http://publications.environment-agency.gov.uk/pdf/GEHO0509BQCP-e-e.pdf)
Gives advice on how to classify and code wastes from some of the methods used to treat hazardous waste.

HWR08 How to find out if waste oil and wastes that contain oil are hazardous (Version 3.1 June 2007) (see: http://publications.environment-agency.gov.uk/pdf/GEHO0607BMTW-e-e.pdf?lang=_e)
EA made a minor amendment version 3 issued at the beginning of June 2007. This clarifies the threshold for total carcinogenic PAHs that are used to determine whether an oil is a carcinogen or not.

See http://www.environment-agency.gov.uk/business/topics/waste/104765.aspx
for further guidance on the classification and coding of wastes

Guidance for waste destined for disposal in landfills, including guidance for waste producers and waste managers. (see: http://www.environment-agency.gov.uk/static/documents/Business/wacv2_1006008.pdf) Information on the practical implications of the Landfill Directive on the types of waste that can be sent to landfill.

Use of Higher Landfill Waste Acceptance Criteria Limit Values (see: http://www.environment-agency.gov.uk/static/documents/Business/higher_wac_version_2_1122307.pdf)

Guidance on mixing under the Hazardous Waste (England and Wales) Regulations 2005, and other HWR guidance (see: http://www.defra.gov.uk/environment/waste/topics/hazwaste/wasteregs.htm)

National planning policy for waste: Planning Policy Statement 10: Planning for Sustainable Waste Management (PPS10)

Guidance: Planning for Sustainable Waste Management: A Companion Guide to PPS10. See: http://www.communities.gov.uk/planningandbuilding/planning/planningpolicyguidance/mineralsandwaste/wastemanagement/pps10/

Guidance to be developed

Guidance on factors to be considered when considering best overall environmental option (BOEO) in the waste hierarchy.

Guidance on definition of organic waste

Supporting guidance on use of the decision tree tool for specific waste types

Glossary of terms

Dangerous substance – is as defined in Council Directive 67/548/EEC of 27 June 1967

Hazardous waste - is defined in Regulation 6 of the Hazardous Waste (England and Wales) 2005 Regulations. These controls and this strategy do not cover waste classified as radioactive waste under the Radioactive Substances Act 1993 (RSA) (except in the limited circumstances where such waste do not require an authorisation under that Act because it falls under an exemption order made under that Act), as they are dealt with separately by the RSA and Managing Radioactive Waste Safely MRWS programme.

Hazardous property – Hazardous properties are listed in Annex III to the revised Waste Framework Directive. To be hazardous, a waste must display one or more of these listed properties.

Leachate – means any liquid percolating through deposited the waste and emitted from or contained within a landfill

Mirror entry – One of two alternative entries in the European Waste List for a specific waste stream, one hazardous, one non-hazardous depending on the concentration of dangerous substances within the waste.

Hazardous organic waste – For the purpose of the Hazardous Waste Strategy *only*, and in particular the decision trees, hazardous 'organic waste' means those hazardous wastes that *predominately comprise* compounds containing carbon, with the following exceptions: carbonates, bicarbonates, metal cyanides and metal ions. Inorganic compounds are generally salts, consisting of cations and anions joined by ionic bonding.

If a waste cannot specifically be assigned as organic and inorganic then it should be considered for separation or segregation as a mixed waste. The important thing to consider is that the treatment technique is used that applies the hierarchy and delivers the best overall environmental outcome. It is recognised that further detail may be needed in guidance to be developed in close liaison with the Environment Agency and the hazardous waste sector.

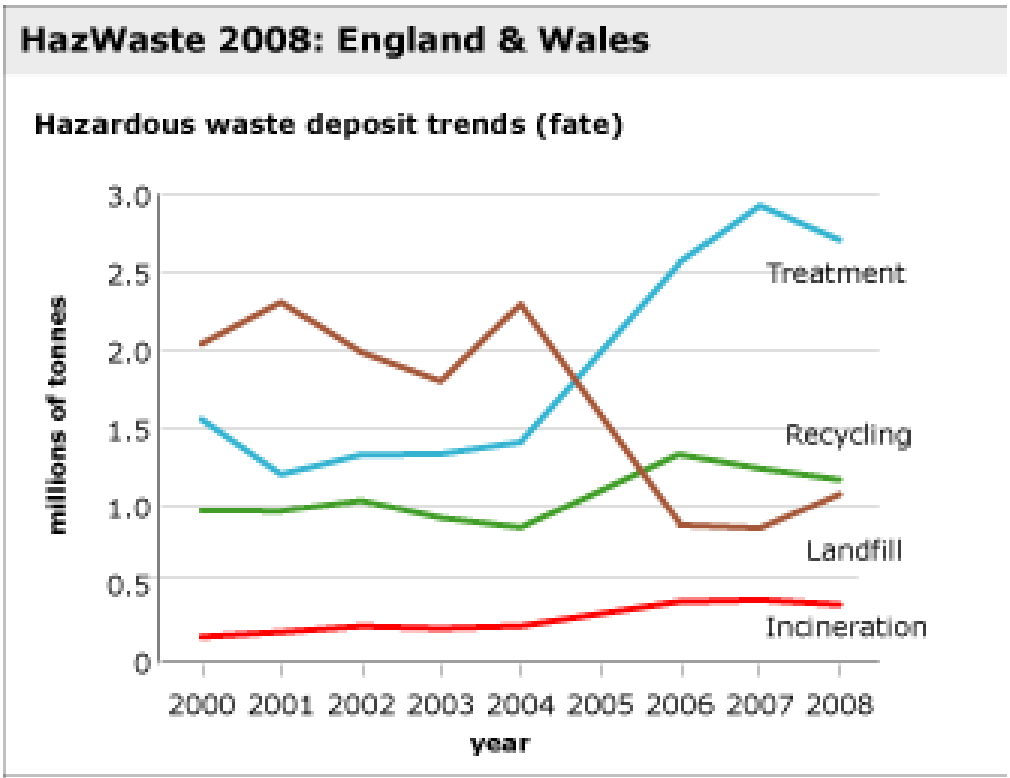
Stable non reactive hazardous waste – means waste where the leaching behaviour of the waste will not change adversely in the long-term in the waste alone or under the impact of water, air, temperature, or by other wastes including leachate or gas.

Annex 1

Hazardous waste trends, England and Wales 2008[10]

Figure 6 shows trends in the fate of hazardous waste from 2000-2008. Over 6.6 million tonnes of hazardous wastes were sent for disposal and recovery in England and Wales in 2008 (note this is slightly higher than the actual arisings in E&W). This showed an increase in 3% compared to 2007. The amount of hazardous waste sent to landfill increased by 26% to over 1 million tonnes, with recycling and reuse showing a decrease of 6% in 2008.

Figure 6: Trends in hazardous waste management



** 2005 was a transition year with data from old and new hazardous waste systems. There were comparability problems and some data was missing so returns for 2005 have not been included in our trend analysis.*

*** The increase in treatment between 2004 and 2007 was largely accounted for by a single plant on Teesside, which took in more than 1.6 million tonnes of liquid wastes by pipeline from nearby chemical processing plants in 2007.*

- There are 24 hazardous waste only landfills in England and Wales; 17 merchant and 7 restricted user. However there are also around 50 non

[10] http://www.environment-agency.gov.uk/research/library/data/111312.aspx

hazardous landfills that have a mono cell for the disposal of stable non-reactive hazardous wastes such as asbestos.

- The increase in hazardous waste to landfill in 2008 was mainly due to the disposal of waste from the Olympics site.

- Although recycling and reuse of hazardous waste appear to have decreased by 6% in 2008, the movement through transfer stations for recovery purposes increased by 40%.

- Waste from waste water treatment plants, construction waste with asbestos and oil/ oil and water mixtures were the three waste streams with the largest tonnage increases in 2008 (26%, 22% and 21% respectively).

- London and the South East were the largest exporters of hazardous wastes in 2008 with the East Midlands and the North East importing the largest quantities.

Annex 2

Updated Summary of Facility Needs for Hazardous Waste Management in England

The priority needs by waste stream are as follows:

Oily sludges

- Some 60,000 tonnes of oily sludges and oily filter cakes arise each year. Over the past two years **thermal** desorption has emerged as the most sustainable treatment option and four plant have been constructed. Additional **thermal desorption plant** for the treatment of oily sludges and oily filter cakes may be needed. These plant enable the recovery of oils from the wastes and in some cases the solids, so are higher up the waste hierarchy than incineration or landfill, and reduce the need for such treatment.

Waste oils

- There are some 350,000 tonnes of waste oils arising annually in the UK which require treatment. There is currently approximately 70,000 tonnes per annum capacity of waste oil regeneration/recycling/laundering. There is a demand for at least one further modern high quality oil regeneration plant (re-refinery) with a capacity of 80,000 tonnes per annum, which would enable the UK to broaden its management options for used oil and help the UK to meet the demand for base lubricating oil; waste oil regeneration is classed as recycling and is higher up the waste hierarchy than processing waste oil for energy recovery. In time once the first plant has a settled operation, the market would likely sustain the development of a further re-refinery plant of similar size. Such plant do require substantial capital investment.

- Plant exist for the treatment of waste oils for use as fuel. An end of waste protocol is being developed for the production and use of processed fuel oil from waste lubricating oils. If this protocol is agreed and accepted then plant currently producing recovered fuel oil, which is classified as a waste, could upgrade their facilities to produce Processed Fuel Oil (PFO) in line with the agreed protocol.

Air Pollution Control Residues

- APC residues arise from the treatment of flue gases from municipal waste incinerators and energy from waste plant. Such residues are classified as hazardous waste due to their elevated alkalinity. They also contain dangerous substances from the pollution abatement process. Arisings of APC residues are predicted to rise as the number of EfW plant also rises. EAs hazardous waste data shows annual arisings of APC in the last three years were: 2006 – 111,000 tonnes; 2007- 118,000 tonnes; 2008 – 122,000 tonnes, so the trend is upwards. Analysis of the EfW plant under construction show a further 77,000 tonnes per annum of APC residues are expected to arise in England, needing treatment. A further set of EfW plant have planning approval which indicates that arisings of APC residues would increase by at least a further 95,000 tonnes per annum (total further arisings 172,000 tonnes) if all the plant come on stream. There is the possibility for a significant number of additional EfW plant to be developed, which would lead to even greater demand for APC residue treatment.

- A number of different treatment options exist for APC residues. Treatments that are able to make use of the resources in the waste through recycling and recovery are higher up the hierarchy than waste disposal operations. There is a need therefore for at least five facilities that can recycle APC residues to other materials that can be re-used, each with a capacity of 33,000 tonnes per annum, and a significant number of additional facilities may be needed if further EfW plant are developed. Other treatments for APC residues, which simply enable the waste stream to meet Landfill Directive requirements are lower down the hierarchy.

Contaminated soil

- The market for the treatment of contaminated soil is relatively volatile, and is heavily influenced by the economic climate which affects rates of development and the siting and introduction of major projects such as the Olympics. Considerable capacity for the treatment of contaminated soils already exists or is planned, including facilities for bioremediation, soil washing and soil stabilisation. However, the latest hazardous waste data shows that a considerable proportion of Chapter 17 hazardous waste (wastes from the construction and demolition sector) and comprising a substantial proportion of contaminated soil continues to be landfilled despite the application of the landfill tax. A need is considered to exist for at least one further facility to treat contaminated soils using bioremediation or soil washing to further meet the treatment needs of contaminated soil diverted from landfill. Such a plant would be likely to have a capacity well in excess of 30,000 tonnes per annum.

Building insulation foams

- The increased separation of building insulation foams containing ozone depleting substances (ODS) from construction and demolition wastes is likely to increase demand for plant that are able to remove and treat ODS, and enable more C&D waste to be prepared for re-use or be recycled. Research conducted for Defra and soon to be published indicates that the maximum annual tonnage of ODS-containing foam waste is predicted to peak in 2034 with annual arisings of almost 24,000 tonnes. On average the annual arisings will be in the region of 8,000 tonnes between 2010 and 2064.

Hazardous waste electrical and electronic equipment

- The key waste streams here are discarded televisions and computer monitors, including both cathode ray tubes (CRTs) and flat panel displays (FPDs) and refrigeration equipment. An extensive network of plant for the treatment of discarded refrigeration equipment containing CFCs already exists. Facilities also exist for the treatment of CRTs, but no plant exists for FPDs. It is estimated that some 89,000 tonnes of “display equipment” arise in the UK per annum. Whilst levels of FPDs in the waste stream are currently relatively low, the levels are expected to increase substantially, and a dedicated treatment plant to enable parts and materials to be recycled and recovered will be needed, and this is likely to have a capacity above 30,000 tonnes per annum. Sufficient plant already exist for the treatment of refrigeration equipment and fluorescent tubes;

Batteries

- Implementation of the Batteries Directive will increase the collection and recycling of end of life batteries. Disposal of waste industrial or automotive batteries by landfilling or incineration is now prohibited, and challenging targets for the recycling of portable batteries have been set. A priority need exists for further treatment capacity in existing or new battery recycling plant. Development of a specialist facility for processing portable batteries including NiCds, lithium ion and NiMH batteries would obviate need for export, and at least one plant is likely to be needed, with a capacity up to 30,000 tonnes per annum. Sufficient plant already exist for the recycling of lead acid car batteries in the UK.

Mercury

- Metallic mercury is now controlled under a new European Regulation (EC 1102/2008). This Regulation requires all metallic mercury specified in Article 2 to be considered a waste and its export from the EU is prohibited both from 15 March 2011. From this date, all arisings of metallic mercury will require treatment and disposal and re-use and recycling will be prohibited. Export of mercury within the EU will be possible, but the UK should also look to treat and dispose of its own arisings in the interests of national self sufficiency. Options for treatment of metallic mercury include deep underground storage. The EC Regulation provides for certain derogations from the requirements of the Landfill Directive for the storage of metallic mercury that is considered a waste. Annual arisings are not estimated to be excessive. It is estimated that the European chlor-alkali industry will require the disposal of 8,000 – 9,000 tonnes in total of elemental mercury between now and 2020. The quantities from other sources that will require disposal such as redundant electrical components, thermometers and the cleaning of natural gas etc are not well understood.

Household Hazardous Waste

- Some household waste recycling centres (HWRCs) are permitted to receive household hazardous waste and as more hazardous waste is segregated from the municipal waste stream, then HWRCs will need to have sufficient capacity and be designed to handle it, in particular to keep such hazardous waste separate from the general municipal waste as is required by existing legislation. Types of household hazardous waste collected at such sites includes asbestos panels, hazardous WEEE (including TVs, computer monitors, refrigeration equipment and fluorescent tubes), motoring products including waste oil and car batteries, some paints and related materials, and certain household and garden chemicals.

The additional need for the following types of facility are not clear cut:

- **High temperature incineration** (HTI) for waste diverted from landfill. Current capacity in the two existing dedicated commercial HTI plant in England appears to be sufficient for current need. It is recognised that if the market were to encourage the provision of an additional plant, it would require considerable investment and planning, and should be designed and fitted with energy recovery.

- Some **municipal waste incinerators** are allowed by their Waste Incineration Directive (WID) permit to take specified hazardous wastes such as contaminated

packaging, and further capacity could be needed for this waste stream and others such as treated wood waste. In many cases the planning permission and waste permit for the plant would require modification.

- Plant for the treatment of **hazardous healthcare waste** are considered sufficient for current need. There is scope for further segregation of hazardous and non hazardous healthcare waste at source and a consequent reduction in arisings of the hazardous fraction.

- The transposition of the Mining Waste Directive (2006/21/EC) may result in demand and need for facilities to recover and dispose of the **hazardous waste streams from mines and quarries**.

- **Stabilisation/Solidification plant** or other acceptable treatment to enable certain hazardous waste to meet the requirements for deposit in hazardous waste landfill or in separate cells for stable non reactive hazardous waste at non-hazardous waste landfill sites; evidence indicates that the country has adequate capacity.

- **Hazardous waste landfill** appears to be sufficient for current need with some seven dedicated hazardous waste landfills in England providing a disposal option for a wide range of hazardous wastes. There are also a number of separate cells in non hazardous landfill for stable non-reactive hazardous waste and for asbestos. Current void capacity in dedicated hazardous waste landfills is estimated to be 19million cubic metres. Some of the facilities have time limited planning permissions which may require extension in due course.

Annex 3

Relevant EU Directive/ Regulation wording

Waste Framework Directive (2008/98/EC)(WFD)
Article 4
Waste hierarchy

1. The following waste hierarchy shall apply as a priority order in waste prevention and management legislation and policy:

(a) prevention;

(b) preparing for re-use;

(c) recycling;

(d) other recovery, e.g. energy recovery; and

(e) disposal.

2. When applying the waste hierarchy referred to in paragraph 1, Member States shall take measures to encourage the options that deliver **the best overall environmental outcome**.

This may require specific waste streams departing from the hierarchy where this is justified by life-cycle thinking on the overall impacts of the generation and management of such waste.

Member States shall ensure that the development of waste legislation and policy is a fully transparent process, observing existing national rules about the consultation and involvement of citizens and stakeholders.

Member States shall take into account the general environmental protection principles of precaution and sustainability, technical feasibility and economic viability, protection of resources as well as the overall environmental, human health, economic and social impacts, in accordance with Articles 1 and 13.

WFD Article 7(4)
List of waste

4. The **reclassification of hazardous waste as non-hazardous waste may not be achieved** by diluting or mixing the waste with the aim of lowering the initial concentrations of hazardous substances to a level below the thresholds for defining waste as hazardous.

WFD Article 15(1)
Responsibility for waste management

1. Member States shall take the necessary measures to ensure that any original waste producer or other holder carries out the treatment of waste himself or has the treatment handled by a dealer or an establishment or undertaking which carries out waste treatment operations or arranged by a private or public waste collector in accordance with Articles 4 and 13.

WFD Article 16
Principles of self-sufficiency and proximity

1. Member States shall take appropriate measures, in cooperation with other Member States where this is necessary or advisable, to establish an integrated and adequate network of waste disposal installations and of installations for the recovery of mixed municipal waste collected from private households, including where such collection also covers such waste from other producers, taking into account best available techniques.

By way of derogation from Regulation (EC) No 1013/2006, Member States may, in order to protect their network, limit incoming shipments of waste destined to incinerators that are classified as recovery, where it has been established that such shipments would result in national waste having to be disposed of or waste having to be treated in a way that is not consistent with their waste management plans. Member States shall notify the Commission of any such decision. Member States may also limit outgoing shipments of waste on environmental grounds as set out in Regulation (EC) No 1013/2006.

2. The network shall be designed to enable the Community as a whole to become self-sufficient in waste disposal as well as in the recovery of waste referred to in paragraph 1, and to enable Member States to move towards that aim individually, taking into account geographical circumstances or the need for specialised installations for certain types of waste.

3. The network shall enable waste to be disposed of or waste referred to in paragraph 1 to be recovered in one of the nearest appropriate installations, by means of the most appropriate methods and technologies, in order to ensure a high level of protection for the environment and public health.

4. The principles of proximity and self-sufficiency shall not mean that each Member State has to possess the full range of final recovery facilities within that Member State.

WFD Article 17
Control of hazardous waste

Member States shall take the necessary action to ensure that the production, collection and transportation of hazardous waste, **as well as its storage and treatment**, are carried out in conditions providing protection for the environment and human health in order to meet the provisions of Article 13….

WFD Article 18
Ban on the mixing of hazardous waste

1. Member States shall take the necessary measures to ensure that hazardous waste is not mixed, either with other categories of hazardous waste or with other waste, substances or materials. Mixing shall include the dilution of hazardous substances.

2. By way of derogation from paragraph 1, Member States may allow mixing provided that:

(a) the mixing operation is carried out by an establishment or undertaking which has obtained a permit in accordance with Article 23;

(b) the provisions of Article 13 are complied with and the adverse impact of the waste management on human health and the environment is not increased; and

(c) **the mixing operation conforms to best available techniques**.

3. Subject to technical and economic feasibility criteria, where hazardous waste has been mixed in a manner contrary to paragraph 1, separation shall be carried out where possible and necessary in order to comply with Article 13.

Integrated Pollution Prevention and Control Directive (2008/1/EC) (IPPC)
Article 2(12)
Definitions

12. 'best available techniques' means the most effective and advanced stage in the development of activities and their methods of operation which indicate the practical suitability of particular techniques for providing in principle the basis for emission limit values designed to prevent and, where that is not practicable, generally to reduce emissions and the impact on the environment as a whole:

(a) 'techniques` shall include both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned;

(b) 'available techniques' means those developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions, taking into consideration the costs and advantages, whether or not the techniques are used or produced inside the Member State in question, as long as they are reasonably accessible to the operator;

(c) 'best` means most effective in achieving a high general level of protection of the environment as a whole.

In determining the best available techniques, special consideration should be given to the items listed in Annex IV;

IPPC Article 3
General principles governing the basic obligations of the operator

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

(a) all the appropriate preventive measures are taken against pollution, in particular through application of the **best available techniques;**

(b) no significant pollution is caused;

(c) **waste production is avoided in accordance with Directive 2006/12/EC of the European Parliament and of the Council of 5 April 2006 on waste; 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;

(d) energy is used efficiently;

(e) the necessary measures are taken to prevent accidents and limit their consequences;

(f) the necessary measures are taken upon definitive cessation of activities to avoid any pollution risk and return the site of operation to a satisfactory state.

2. 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 paragraph 1 when they determine the conditions of the permit.

Landfill Directive (1999/31/EC) (LFD)
LFD Recital 8
(8) Whereas both the quantity and hazardous nature of waste intended for landfill should be reduced where appropriate;

LFD Recital 17
Whereas the measures taken to reduce the landfill of biodegradable waste should also aim at encouraging the separate collection of biodegradable waste, sorting in general, recovery and recycling.

LFD Article 1(1)
Overall Objective

1. With a view to meeting the requirements of Directive 75/442/EEC, and in particular Articles 3 and 4 thereof, the aim of this Directive is, by way of stringent operational and technical requirements **on the waste** and landfills, to provide for measures, procedures and guidance to prevent or reduce as far as possible negative effects on the environment, in particular the pollution of surface water, groundwater, soil and air, and on the global environment, including the greenhouse effect, as well as any resulting risk to human health, from landfilling of waste, **during the whole life-cycle of the landfill.**

LFD Article 5(1), (4)
Waste and treatment not acceptable in landfills

1. Member States shall set up a national strategy for the implementation of the reduction of **biodegradable waste** going to landfills, not later than two years after the date laid down in Article 18(1) and notify the Commission of this strategy. This strategy should include

measures to achieve the targets set out in paragraph 2 by means of in particular, recycling, composting, biogas production or materials/energy recovery. Within 30 months of the date laid down in Article 18(1) the Commission shall provide the European Parliament and the Council with a report drawing together the national strategies.

4. The dilution of mixture of waste solely in order to **meet the waste acceptance** criteria is prohibited.

Council Decision 2003/33/EC on waste acceptance criteria
Annex – Criteria and procedures for the acceptance of waste at landfills

2. Waste Acceptance Criteria
This section sets out the criteria for the acceptance of waste at each landfill class, including criteria for underground storage.

In certain circumstances, up to three times higher limit values for specific parameters listed in this section (other than dissolved organic carbon (DOC) in sections 2.1.2.1, 2.2.2, 2.3.1 and 2.4.1, BTEX, PCBs and mineral oil in section 2.1.2.2, total organic carbon (TOC) and pH in section 2.3.2 and loss on ignition (LOI) and/or TOC in section 2.4.2, and restricting the possible increase of the limit value for TOC in section 2.1.2.2 to only two times the limit value) are acceptable, if
- the competent authority gives a permit for specified wastes on a case-by-case basis for the recipient landfill, taking into account the characteristics of the landfill and its surroundings, and
- emissions (including leachate) from the landfill, taking into account the limits for those specific parameters in this section, will present no additional risk to the environment according to a risk assessment.

Member States shall report to the Commission on the annual number of permits issued under this provision. The reports shall be sent to the Commission at intervals of three years as part of the reporting on the implementation of the Landfill Directive in accordance with the specifications laid down in Article 15 thereof.

Appendix B

Non-hazardous waste landfill, including subcategories

Member States may define subcategories of landfills for non-hazardous waste in accordance with their national waste management strategies as long as the requirements of the Landfill Directive are met. **Three major subcategories of non-hazardous waste landfills are shown in figure 1:** landfill for inorganic waste with low organic/biodegradable content (B1), landfill for organic waste (B2), and landfill for mixed non-hazardous waste with substantial contents of both organic/biodegradable and inorganic materials. Category B1 sites can be subdivided further into sites for wastes that do not meet the criteria set out in section 2.2.2 for inorganic non-hazardous wastes that maybe co-disposed with stable, non reactive hazardous wastes (B1a) and sites for wastes that do meet those criteria (B1b). Category B2 sites may, for example, be further subdivided into bioreactor landfills and landfills for less reactive, biologically treated waste. **Further subclassification of non-hazardous landfills may be**

desired by some Member States, and monofills and landfills for solidified/monolithic waste maybe defined within each subcategory (see the footnote below table 1). **National acceptance criteria may be developed by the Member States** to ensure proper allocation of non-hazardous waste to the various subcategories of non-hazardous waste landfills. If sub-classification of non-hazardous waste landfills is not desired, all non-hazardous waste (subject of course to the provisions of Articles 3 and 5 of the Landfill Directive) may go to a landfill for mixed non-hazardous waste (class B3).

Waste Shipments Regulation
Article 12(1), (5), (6)

Objections to shipments of waste destined for recovery

1. Where a notification is submitted regarding a planned shipment of waste destined for recovery, the competent authorities of destination and dispatch may, within 30 days following the date of transmission of the acknowledgement of the competent authority of destination in accordance with Article 8, raise reasoned objections based on one or more of the following grounds and in accordance with the Treaty:

(a) that the planned shipment or recovery would not be in accordance with Directive 2006/12/EC, in particular Articles 3, 4, 7 and 10 thereof; or

(b) that the planned shipment or recovery would not be in accordance with national legislation relating to environmental protection, public order, public safety or health protection concerning actions taking place in the objecting country; or

(c) that the planned shipment or recovery would not be in accordance with national legislation in the country of dispatch relating to the recovery of waste, including where the planned shipment would concern waste destined for recovery in a facility which has lower treatment standards for the particular waste than those of the country of dispatch, respecting the need to ensure the proper functioning of the internal market;

This shall not apply if:

(i) there is corresponding Community legislation, in particular related to waste, and if requirements that are at least as stringent as those laid down in the Community legislation have been introduced in national legislation transposing such Community legislation,

(ii) the recovery operation in the country of destination takes place under conditions that are broadly equivalent to those prescribed in the national legislation of the country of dispatch,

(iii) the national legislation in the country of dispatch, other than that covered by (i), has not been notified in accordance with Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of technical standards and regulations and of rules on Information Society services, where required by that Directive, or

(d) that the notifier or the consignee has previously been convicted of illegal shipment or some other illegal act in relation to environmental protection. In this case, the competent authorities of dispatch and destination may refuse all shipments involving the person in question in accordance with national legislation; or

(e) that the notifier or the facility has repeatedly failed to comply with Articles 15 and 16 in connection with past shipments; or

(f) that the planned shipment or recovery conflicts with obligations resulting from international conventions concluded by the Member State(s) concerned or the Community; or
(g) that the ratio of the recoverable and non-recoverable waste, the estimated value of the materials to be finally recovered or the cost of the recovery and the cost of the disposal of the non-recoverable fraction do not justify the recovery, having regard to economic and/or environmental considerations; or
(h) that the waste shipped is destined for disposal and not for recovery; or
(i) that the waste will be treated in a facility which is covered by Directive 96/61/EC, but which does not apply best available techniques as defined in Article 9(4) of that Directive in compliance with the permit of the facility; or
(j) that the waste concerned will not be treated in accordance with legally binding environmental protection standards in relation to recovery operations, or legally binding recovery or recycling obligations established in Community legislation (also in cases where temporary derogations are granted); or
(k) that the waste concerned will not be treated in accordance with waste management plans drawn up pursuant to Article 7 of Directive 2006/12/EC with the purpose of ensuring the implementation of legally binding recovery or recycling obligations established in Community legislation.

5. Objections raised by competent authorities in accordance with paragraph 1(c) shall be reported by Member States to the Commission in accordance with Article 51.

6. The Member State of dispatch shall inform the Commission and the other Member States of the national legislation on which objections raised by competent authorities in accordance with paragraph 1(c) may be based, and shall state to which waste and waste recovery operations those objections apply, before such legislation is invoked in order to raise reasoned objections.