



The Landfill Regulations: Frequently Asked Questions Number 1: VERSION 1.0, JULY 2004

Audience – This FAQ document has been produced for internal Environment Agency use to assist officers in dealing with queries relating to the ban on co-disposal. The answers may be subject to change in the light of regulatory changes, future Government guidance or experience of applying the Regulations. However, in the interests of transparency, this explanatory note has been made available outside the Agency. It must be stressed that these FAQs have no status other than as internal Agency guidance to staff, and that it remains the responsibility of operators and producers to comply with any obligations placed upon them under the Regulations.

Issues surrounding end of co-disposal/hazardous waste ban and Waste Acceptance Criteria.

Questions covered in this FAQ

1. Why is re-permitting such a complex process?
2. Why is there a need to end co-disposal?
3. What is the interim year?
4. Waste Acceptance Ratios? – why are they needed, what are the principles and the duration?.
5. What are full WAC and when do they come into force?
6. What are the Interim WAC?
7. What are the Waste Acceptance Procedures (WAPs) and the interim WAPs and when do they come into force?
8. What are levels 1-3 testing and when do the requirements come into force?
9. What are the basic requirements of pre-treatment?
10. How will the WAC requirements be enforced?
11. What does the risk assessment option related to WAC mean and in what circumstances can it apply?
12. What types of waste streams will this risk-assessment option apply to?
13. When do the various bans on specific wastes being disposed of within landfill apply?
14. What is the role of the waste producer in ensuring compliance with the Landfill Regulations?
15. What is stable, non-reactive, hazardous waste?
16. What are options/requirements for landfilling SNRHW?
17. What are the options for landfilling asbestos waste?
18. How do we define high sulphate bearing wastes?
19. When do high sulphate bearing wastes have to be deposited in separate cells?
20. What is the situation regarding the landfilling of tyres at existing landfill sites?
21. Can hazardous liquid waste be mixed with saw-dust and disposed of to a hazardous waste landfill now? From 16th July 04.
22. What are the principles underpinning RGN 6 and 16?

Questions and Answers

1. Why is re-permitting such a complex process?

Prior to 2000, all landfills were regulated under Waste Management Licences and the majority of operational landfills still are for the moment.

The Integrated Pollution Prevention and Control Directive lists 'landfill' as an activity to be regulated under its system of 'integrated permits'. It requires that sites above a certain capacity threshold are issued with PPC permits by October 2007 at the latest if they are to continue accepting waste.

The Landfill Directive sets standards of operation for landfill and sets out a timetable for existing sites to be brought up to standard, with this having to be achieved "as soon as possible". The absolute latest date by which all landfills must either be fully compliant or closed is July 2009. In the case of the UK this would have meant review and modification of some 1500 existing Waste Management Licences.

In implementing Landfill Directive, Government decided to combine implementation of IPPC and LFD through a single permit to be issued under the Pollution Prevention and Control Regulations 2000. *A consequence of this approach is that sites will either have to comply with the requirements of the regulations compliance or close 31 March 2007 at the latest.* Government also decided that in future all landfills would be regulated under a PPC permit rather than Waste Management licences.

PPC permits for landfills have to ensure compliance with:

- IPPC Directive
- Landfill Directive
- Waste Framework Directive
- Groundwater Directive
- Habitats Directive
- Hazardous Waste Directive

This body of EC law has developed over a lengthy period and has been implemented in the UK through a range of legislative instruments of varying ages. Consequently it is particularly challenging to resolve all the issues they raise through the issue of a new permit to an existing landfill.

2. Why is there a need to end co-disposal?

The Landfill Directive's overall objective is to prevent or reduce as far as possible the negative effects of landfilling on the environment as well as any resulting risk to human health. It has been decided at a European level that the common UK practice of co-disposal (where hazardous wastes are mixed with other wastes in landfill) does not meet this objective. Therefore the Landfill Directive requires the classification of landfills into three types: for only hazardous, non-hazardous or inert wastes and thus an end to the existing method of co-disposal.

The last date when the co-disposal of wastes can take place is 15 July 2004 and it will be an offence to co-dispose of hazardous and non-hazardous waste in a landfill after that date.

3. What is the interim year?

This is the period between 16th July 2004 and 16th July 2005. During this year:

- there will be no more co-disposal (this will end for good on 16/7/04)
- hazardous waste will need to be pre-treated before it can be landfilled (this requirement starts on 16/07/04)
- hazardous waste being landfilled will have to meet the general waste acceptance criteria (WAC) set out in schedule 1 to the Landfill regulations
- at the end of the interim year (from 16/07/04) hazardous waste to be landfilled will have to meet the full WAC that are set out in the Landfill (England and Wales)(Amendment) Regulations 2004.

4. Waste Acceptance Ratios? – Why are they needed, what are the principles and the duration?

Waste Acceptance Ratios are similar to 'loading rates' which have been applied in waste management licences for the control of the waste mix for many years. They provide an important risk management measure.

Waste Acceptance Ratios will be used in most landfills for non-hazardous wastes to ensure that the mix of waste types will produce a leachate within the normal range of predicted constituents. Limiting the ratios of different waste types has been a commonly used method of preventing an unacceptable concentration of contaminants within the leachate and gas.

For some hazardous waste landfills, Waste Acceptance Ratios will also be used as a risk management measure. The Landfill Directive prohibits acceptance of hazardous waste and non-hazardous waste at the same site. Where former co-disposal sites have opted to only accept hazardous waste in future that waste may be deposited into cells that already contain both hazardous and non-hazardous waste. Over time this will have the effect of increasing the ratio of hazardous to non-hazardous waste deposited in these sites to the point where currently accepted loading rates are exceeded. For these sites the Agency will regulate on a site-specific basis the amount and type of hazardous waste via Waste Acceptance Ratios. It is likely that the ability of these sites to 'absorb' more hazardous waste will be exhausted relatively rapidly.

5. What are full WAC and when do they come into force?

The WAC are standards. Generally, they are limit values on the content of some organic parameters or on the amounts of certain inorganic components that may leach from inert and hazardous wastes that are to be landfilled. Wastes have to be sampled and tested using standard methods to establish whether or not they can meet the limit values.

The full WAC are EC wide standards which were published in December 2002. These standards have been transposed into domestic law in England and Wales via the Landfill (England and Wales)(Amendment) Regulations 2004. Hazardous waste being landfilled will have to meet the full WAC from the 16 July 2005.

6. What are the Interim WAC?

Schedule 1, paragraph 1 to the Landfill (England and Wales) Regulations 2002 sets out criteria that apply to all classes of landfill to be taken into account in determining whether waste may be accepted at a landfill. This includes the need to demonstrate that the acceptance of a waste would meet the following criteria in both the short and long term (post closure):-

- there are no unacceptable emissions to groundwater and surface water and the surrounding environment;
- the environmental protection systems such as liners, leachate and gas collection and treatment systems at the site are not jeopardised;
- waste-stabilisation processes such as degradation or wash out within the landfill are protected;
- there is no unacceptable risk to human health.

Schedule 1 Paragraph 2 of the 2002 Regulations sets out additional, interim waste acceptance criteria for landfills for hazardous wastes. Wastes acceptable at landfills for hazardous waste are those covered by the Hazardous Waste Directive (those listed on the Hazardous Waste List of the European Waste Catalogue, or having similar characteristics to those listed) and that the total content or leachability of those wastes do not:

- present a short term occupational risk or environmental risk; and
- would not prevent the stabilisation of the landfill within its projected lifetime taking account of its aftercare period following closure

These additional criteria apply to all landfills for hazardous waste from 16 July 2004.

7. What are the Waste Acceptance Procedures (WAPs) and the interim WAPs and when do they come into force?

The full Waste Acceptance Procedures are requirements for the, characterisation and testing of wastes and checking of loads prior to acceptance at landfills. The site operator must take appropriate steps (which will include checking Duty of Care/Special Waste documentation) to ensure that waste accepted at the landfill is:

- authorised to be accepted at the site
- has been pre-treated, and
- satisfies the relevant waste acceptance criteria

The composition, long-term behaviour and general properties of a waste to be landfilled must be known as precisely as possible. Waste reception procedures must also be put in place by the site operator.

The Landfill Directive requires that National Interim Waste Acceptance Procedures are set up and apply in the interim until the full WAPs are implemented (16 July 2005

for hazardous waste sites). The requirements are set out in Regulation 12 of the Landfill Regulations 2002 and the relevant data requirements are as listed in Section 3.1 of LFD RGN2 version 3. In general terms compliance with NIWAPS will involve provision of all the information listed in Section 3.1 except for leaching test data.

8. What are levels 1-3 testing and when do the requirements come into force?

The Landfill Directive introduces a three level hierarchy for waste characterisation and testing, applied to all classes of landfill:

- **Level 1: Basic characterisation.** *Essentially much of this information is already required by the Duty of Care and constitutes a thorough determination, according to standardised analysis and behaviour-testing methods, of the short and long-term leaching behaviour and/or characteristic properties of the waste. It involves the provision of all the information in Section 3.1 of LFD RGN 2 vs 3 except the leaching test data. Once full WAC are in place, leaching test data will also be required.*
- **Level 2: Compliance testing.** *It is advisable that landfill operators are always aware of the characteristics of the wastes they accept at their sites and that they implement a compliance checking/testing plan to achieve this understanding. Compliance testing constitutes periodical testing by standardised analysis and behaviour-testing methods to determine whether a waste complies with permit conditions and/or specific reference criteria, such as WAC. The tests should focus on key variables (i.e. those parameters that might be responsible for the waste failing to achieve the relevant criteria for acceptance at the site in question) and behaviour identified by basic characterisation. Compliance testing will include standard leaching tests once full WAC have been implemented.*
- **Level 3: On-site verification.** *This has been required of the operator of all existing hazardous landfill sites from 16th July 2002. It consists of rapid methods of checking to confirm that a waste is the same as that which was subjected to compliance testing and described in documents accompanying the waste. Where appropriate it may merely consist of a visual inspection of a load of waste before and after unloading at the landfill site.*

The timetable for requiring this characterisation and testing is dependent upon the classification of the landfill and whether it is an “existing landfill” for the purposes of the regulations. The table below summaries the position.

Level of testing / characterisation	New landfills	Existing landfills for hazardous waste	Other existing landfills
Level 3	As permitted	From 16 July 2002, by direct application of the Landfill Regulations	As permitted
Level 1 and 2	From 16 July 2005	From 16 July 2005, by direct application of the Landfill Regulations	As permitted

In summary, before a waste can be landfilled, it must be tested to establish its properties in order to determine whether it meets the general criteria at Schedule 1(1) of the Regulations. The waste must then be regularly and periodically checked/tested to ensure that those properties have not changed, and that the waste meets the relevant current criteria for acceptance at the site. It must also be checked on receipt at the landfill to verify that it is the expected waste and has not been contaminated in storage or transport.

The Agency expects that when full WAC come into force in July 2005, most wastes will require some testing to determine the relevant properties. The exceptions will be wastes where all the data is already available from previous testing, wastes which are specifically listed in Regulations as not requiring testing, or wastes whose composition can confidently be predicted from a knowledge of the process producing the waste.

9. What are the basic requirements of pre-treatment?

The basic pre-treatment requirements for waste destined for landfill are contained within Regulation 2 of the Landfill Regulations 2002. They are commonly referred to as the three-point test. Any potential pre-treatment must fulfil three criteria:

1. It must be a physical/thermal/chemical or biological process including sorting.
2. It must change the characteristics of the waste.
3. It must do so in order to:
 - a) reduce its volume, or
 - b) reduce its hazardous nature, or
 - c) facilitate its handling, or
 - d) enhance its recovery.

10. How will the WAP requirements be enforced?

Regulation 10(1) of the Landfill Regulations (England and Wales) 2002 provides that operators of hazardous waste landfills should take all reasonable steps to ensure that they accept only waste that has been treated.

The Agency will be adopting a compliance strategy covering all aspects of implementation of WAC/WAP. This will include pro-active communication of the WAP requirements to affected businesses (e.g. waste producers and landfill operators) and targeted site inspections/audits of priority landfills/waste streams and of hazardous waste producers.

11. What does the risk assessment option related to full WAC mean?

When the European Commission established the WAC, an option was included for member states to vary the numerical limit values based on an assessment of risks. It was left entirely to member states to decide whether to take this up.

The option is limited in scope because it allows the limit values for a particular waste to be exceeded:

- i. only by a factor of 3; and
- ii. only if an assessment of the risks of allowing the particular waste into a specific site confirmed that there would be no increase in the level of risk to the environment.

12. What types of waste streams will this risk-assessment option apply to?

Government has decided that there are circumstances where the risk-assessment approach could be adopted without a significant increase in complexity, regulatory effort or risk to the environment.

Generally speaking this could be the case where a single hazardous waste stream goes to a landfill dedicated for the disposal of that waste – these tend to be in-house sites run by the producer of the waste.

The rationale behind this is that in these cases the waste stream is likely to be less-variable and hence easier to characterise reliably and any risk assessment will therefore only need to be re-visited if the nature of the waste changes or a different site is used.

Government has indicated the need to review this approach within 2 years.

13. When do the various bans on specific wastes being disposed of within landfill apply?

The timetable and the legal mechanism for banning certain wastes depend on the classification of the landfill and whether the landfill is a new or an existing landfill. For some prohibited wastes, the timetable is subject to confirmation by Government. The table below provides a summary of the current position.

PROHIBITED WASTE	NEW LANDFILL	EXISTING LANDFILL FOR HAZARDOUS WASTE	OTHER EXISTING LANDFILL
Explosive, corrosive, oxidising, flammable and highly flammable wastes.	Now, via permit	Now, by direct application of Landfill Regulations	May not accept any hazardous wastes
Liquid wastes	Now, via permit	Now, by direct application of Landfill Regulations	Single national date to be announced by Government,
Whole used tyres may only be accepted as engineering material	From 16 July 2003, via permit. However, a new landfill for	From 16 July 2003, via permit	May continue to be deposited if authorised by the WML until re-permitted, and as

	hazardous waste may not accept such waste, as it is not hazardous waste.		engineering material thereafter if authorised by the permit.
Shredded used tyres may not be accepted	From 16 July 2006, via permit. However, a new landfill for hazardous waste may not accept such waste, as it is not hazardous waste.	From 16 July 2004 (as these landfills may not accept non-hazardous waste)	From 16 July 2006, via permit
Wastes must be subject to prior treatment	Now, via permit	From 16 July 2004, by direct application of the Landfill Regulations	Single national date to be announced by Government,

14. What is the role of the waste producer in ensuring compliance with the Landfill Regulations?

Waste producers make the initial decisions about the management of their waste and are often in the best position to either treat the waste or secure its treatment by others.

Section 34 of the Environmental Protection Act 1990 requires waste holders, inter-alia, to prevent any contravention of Section 33 (unauthorised disposal) EPA or of Regulation 9 of the 2000 Regulations, and also to ensure that a written description is transferred such as to enable other persons to avoid such contravention.

As it will be an offence to accept untreated waste (unless the qualifiers apply), then section 34 (1)(a) effectively puts the duty on a waste holder to take all reasonable steps to ensure that their waste is not landfilled untreated. Section 34(1)(c)(ii) requires them to transfer sufficient information to enable recipients to comply with the Duty of Care.

Whilst the correct use of EWC codes on transfer notes may provide some assistance in determining whether a waste has been treated, this will not always be the case, for example, source-segregated wastes.

The Government has therefore indicated that, as part of the wider requirements of waste acceptance procedures:

- waste producers should liaise with landfill operators to confirm whether the treatment requirement yet applies to their landfill, and to confirm what treatment has been applied or any reasons why treatment has not been applied;

- waste producers should transfer written information on or with the transfer note as to whether the waste has yet been treated, if so what treatment has been applied, and any reasons why it is considered that treatment is not required.

15. What is stable, non-reactive, hazardous waste?

The term stable¹, non-reactive hazardous waste can be applied to waste whose leaching behaviour will not change adversely in the long-term under the landfill design conditions, either:

- due to changes in the waste itself (for example, by biodegradation);
- under the impact of long-term ambient conditions (for example, water, air, temperature or mechanical constraints); or
- by the impact of other wastes (including waste products such as leachate or gas).

Stable, non-reactive hazardous wastes are likely to include a range of monolithic solidified wastes (wastes in large block forms) or granular solid wastes produced by a variety of treatment plants (such as filter cakes and treated fly ash).

16. What are options/requirements for landfilling SNRHW?

Landfill Directive Regulatory Guidance Note 11² details the technical requirements to be met for the construction of a separate cell to contain stable non-reactive hazardous waste.

17. What are the options for landfilling asbestos waste?

Between 16th July 2004 and 15th July 2005, asbestos waste may be managed in the same way as stable, non-reactive hazardous waste (SNRHW) and can therefore be disposed of in the same cells as SNRHW, segregated from biodegradable wastes. In addition, it can be disposed of at a hazardous waste landfill site in accordance with existing good practice, for example, deposit in an identified area to prevent disturbance at a later date.

When the full WAC are implemented in July 2005, it will only be possible to dispose of asbestos in cells containing no other waste other than asbestos. Such cells will be permitted in either hazardous or non-hazardous waste sites, provided the following procedures are adhered to.

- Only waste asbestos or non-hazardous waste containing or contaminated with asbestos can be accepted in the cell.

¹ The term stable does not mean that the waste is stabilised as provided in the European Commission Decision (2001/118/EC) amending Decision 2000/532/EC as regards the list of wastes. That defines stabilised wastes to be ones that have been treated so that they are no longer hazardous. (i.e. stabilised wastes have had the hazard removed, whereas, in stable hazardous wastes the hazard is still present). Stable also means that the treatment of the waste will not be reversible.

² Landfill Directive Regulatory Note 11: The disposal in landfills for non-hazardous waste of: Stable, non-reactive hazardous wastes; Asbestos wastes; Wastes with high sulphate or gypsum contents

- The asbestos must either be rigid asbestos bound by a binding agent or fibrous asbestos. All asbestos wastes shall be packaged where appropriate in accordance with the appropriate approved codes of practice and guidance documents L27, Work with asbestos which does not normally require a licence – fourth edition, Health and Safety Executive, 2002, or L28, Work with asbestos insulation, asbestos coating and asbestos insulating board – fourth edition, Health and Safety Executive, 2002.
- In order to avoid dispersion of fibres, the zone of deposit shall be covered daily with suitable inert material and, if the waste consists of rigid asbestos that is not packed or for any other reason asbestos is not properly contained, it should be regularly sprinkled. The waste should be covered immediately to a depth of at least 250mm. It should be covered by the end of the working day to a depth of at least one metre on all flanks and surfaces. Final cover for the cell should be not less than two metres of suitable material, before placement of the restoration material. For all these purposes, suitable material should be used, comprising incombustible, granular material free from any objects capable of disrupting the waste or any packing. Deviation from the depth specified may be acceptable, where it can be demonstrated by the operator, that the depth proposed and method of application provides an equivalent level of protection to the environment and human health.
- A final top cover shall be placed on the landfill/cell in order to avoid the dispersion of fibres.
- No works shall be carried out on the landfill/cell that could lead to a release of fibres (e.g. drilling of holes).

Details of the engineering requirements for the asbestos waste cell can be found in LFD RGN 11.

18. How do we define high sulphate bearing wastes?

The term 'high sulphate bearing waste' can apply equally to both gypsum and other wastes containing sulphates. The potential risks from landfilling these types of waste are the same.

In the absence of specific research to provide a definitive limit value, the Agency has reviewed the results of intensive investigations carried out at two landfill sites in Wales. In the light of this experience we concluded that the restriction on high sulphate-bearing waste should apply to any waste with a content of more than 10% sulphate per load.

19. When do high sulphate bearing wastes have to be deposited in separate cells?

The Landfill (England and Wales)(Amendment) Regulations 2004 require high sulphate bearing wastes to be deposited in separate cells from 16th July 2005 i.e. when the full WAC come into force. Until that date, such wastes can continue to be deposited in accordance with current guidance and the waste management licence for the site.

20. What is the situation regarding the landfilling of tyres at existing landfill sites?

The Landfill Regulations provide that certain specified wastes may not be accepted in landfills. These include:

from 16th July 2003, whole used tyres other than –

- (i) tyres used as engineering material;*
- (ii) bicycle tyres; and*
- (iii) tyres with an outside diameter above 1400mm;*

from 16th July 2006, shredded used tyres other than –

- (i) bicycle tyres; and*
- (ii) tyres with an outside diameter above 1400mm;”*

The transitional arrangements in the Landfill Regulations (set out in Schedule 4 and Regulation 8(4)) means that the consequence of these provisions for existing landfills is as follows:

- After 16 July 2003, whole used tyres may only be accepted at existing landfills for hazardous waste provided that they are used as engineering material; or are bicycle tyres; or are tyres with an outside diameter above 1400mm where the waste management licence or permit provides that they may be accepted. It will be an offence under Regulation 17(1)(a) Landfill Regulations to accept whole used tyres in any other circumstances.
- After 16 July 2003, whole used tyres may continue to be accepted at other existing landfills where the waste management licence or permit provides that they may be accepted.
- Shredded used tyres may be accepted at landfills until 16 July 2006 where the waste management licence or permit provides that they may be accepted. However, as tyres are not considered to be hazardous waste, a landfill for hazardous waste may not accept shredded used tyres after 16 July 2004.

21. Can hazardous liquid waste be mixed with saw-dust and disposed of to a hazardous waste landfill

From 16 July 2004, the operator of a hazardous waste landfill must ensure that only waste that meets the relevant waste acceptance criteria is accepted for disposal.

Regulation 9(2) provides that:

(2) The operator of a landfill shall ensure that the landfill is not used for landfilling waste which has been diluted or mixed solely to meet the relevant waste acceptance criteria.

The Government considers that simple physical dilution, without any concurrent chemical or physico-chemical changes, is not an acceptable treatment process. For example, the absorption of a liquid into sawdust such that it is no longer a liquid waste, is not acceptable as a pre-treatment for landfill. Dilution of contaminated soil with other soils or minerals outside the excavation process in order, for example, to bring the concentrations of toxic components below those for hazardous waste is unacceptable.

Mixing of wastes, or of wastes with other materials, so as to produce a chemical or physico-chemical change in pursuance of the third criterion of the 2-point test is likely to be acceptable.

22. What are the principles underpinning RGN 6 and 16?

RGN16 is intended to guide Agency staff in assessing the extent of the installation that needs to be covered by a PPC permit. In identifying the extent of the installation the aim is to ensure that the installation is clearly delineated and can be readily identified on the ground. If this is not the case then neither operator nor the Agency can be clear about which regulatory framework or operating standards apply.

Previous phases of filling that are still regulated by waste management licences and which are not physically separate from adjacent operational phases of the site will fall within the installation to be covered by the PPC permit. Many of these old phases cannot meet the standards demanded by the Landfill and Groundwater Directives and in cases where they form part of the installation this will make it more difficult to issue a PPC permit.

RGN6 explains the Agency's interpretation of the engineering requirements of the Landfill Regulations and how these affect the way the installation is defined. Because no two landfills are identical, it is not possible to provide detailed guidance that covers all eventualities. Officers will therefore always need to exercise a degree of professional judgement when applying this guidance on the ground.