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Guidance on Financial Provision for Landfill

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Your environment is the air you breathe, the water you drink and the ground you walk on. Working with business, Government and society as a whole, we are making your environment cleaner and healthier.

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GEHO0411BTQA-E-E

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This document was withdrawn on 30/7/2020

1 Introduction and legislation

This guidance sets out our approach to managing the financial provision requirements of the Landfill Directive. It is intended for use by applicants for landfill permits under The Environmental Permitting (England and Wales) Regulations 2010 ('The EP Regulations') and as reference for our staff.

- 1.1 The EP Regulations, Regulation 35(2)(d), implement the requirements of the Landfill Directive through schedule 10, paragraph 5.
- 1.2 We must not grant an environmental permit for landfill, unless we are satisfied that

“adequate provisions, by way of a financial security or any other equivalent, on the basis of modalities to be decided by Member States, has been or will be made by the applicant prior to the commencement of disposal operations to ensure that the obligations (including after-care provisions) arising under the permit issued under the provisions of this Directive are discharged and that the closure procedures required by Article 13 are followed. This security or its equivalent shall be kept as long as required by maintenance and after-care operation of the site in accordance with Article 13(d)”
Landfill Directive (1999/31/EC), Article 8(a)(iv)

Further, we must;

‘take measures in order that, in accordance, where appropriate, with the permit:

(d) for as long as the competent authority considers that a landfill is likely to cause a hazard to the environment and without prejudice to any Community or national legislation as regards liability of the waste holder, the operator of the site shall be responsible for monitoring and analysing landfill gas and leachate from the site and the groundwater regime in the vicinity of the site in accordance with Annex III. Landfill Directive (1999/31/EC), Article 15(d)

- 1.3 For all landfills, the financial provision (FP) arrangements should be established before a permit is granted. The FP arrangements must be in place prior to the commencement of disposal operations.

2 Scope of this Guidance

- 2.1 This guidance applies to operators of sites that are permitted to carry out landfill or other activities (e.g. dredging lagoons) where waste is finally disposed of to land. Landfills include all waste sites that are subject to the Landfill Directive.

- 2.2 You must undertake a financial provision assessment¹ for:

- an application for a permit,
- an application to vary a permit, where additional (or where appropriate reduced) obligations result,
- the transfer of a permit (if you are the transferee), or
- the review of a permit, where that review results in a need to re-assess the assumptions and calculations behind the financial provision.

¹ 'Assessment' refers to assessment of the amount of provision and implementation of a mechanism (see sections 4 and 5).

3 Principles

- 3.1 Financial provision must be 'adequate' for you to discharge the obligations of your permit for as long as the landfill poses a hazard. This means that the provision has to be,
- sufficient (in monetary terms),
 - secure, and
 - available when required.
- We must consider the type of financial mechanism proposed and the security of that mechanism, as well as the amount.
- 3.2 The provision must be **sufficient** for you to meet all of the obligations of the permit (see section 4 below). This includes the closure and aftercare obligations.
- 3.3 The funding must be **secure** for the duration of the permit so that funds are available to discharge the obligations of your permit. This includes consideration of any financial risk in relation to the mechanism chosen and ensuring that the funds cannot be diverted for any other purpose.
- 3.4 You must be able to access the funds to discharge the obligations of your permit at the relevant time so that they are **available** usually after the work has been done. The rules of access to those funds are set out in a legal agreement between us. The mechanism must be sufficiently flexible to allow appropriate access to funds should there be premature or delayed closure of the landfill.
- 3.5 You must keep the financial provision under review if it builds up to reflect increasing liabilities. We would not expect the 'exposure liability' (any gap between the amount provided and the liability at any point in time) to exceed 10% of the total financial provision.
- 3.6 We will consider applications to assess financial provision for companies on a case by case basis.
- 3.7 Financial provision agreements may include a clause that provision must be, 'adequate, secure and available to the Environment Agency'. We changed our policy in February 2006 so that the provision is, 'adequate, secure and available to the site operator'. We will amend agreements to reflect this change when permits are reviewed for other purposes. In the meantime, where the agreements are used and funds are made available to us, we will ensure they are paid out to you as soon as possible.
- 3.8 For the purpose of any legal agreements, the definition of 'termination date' means the date on which we agree that the site is definitely closed rather than the date on which the restoration of all phases is complete.

4 Calculation of Financial Provision

- 4.1 You will have to comply with the permit obligations until your permit is surrendered. Your assessment must include the cost of capping, installation of the drainage layer and protection of the cap for the final phase of the landfill. The assessment must include ongoing costs throughout the 'aftercare' phases.
- 4.2 You must decide what the likely duration of the aftercare period will be while preparing your application (e.g. by modelling).

Landfill for Hazardous or Non-Hazardous waste

- 4.3 The Landfill Directive, article 10, states that financial provision must be in place for **at least** 30 years from the closure of the landfill. It also states, '*This security or its equivalent shall be kept as long as required by maintenance and after-care operation of the site...*'.
- 4.4 For landfills for hazardous and non-hazardous waste we consider it appropriate that you estimate detailed costs for an aftercare period of 60 years, with a contingency fund available thereafter. We consider this is a reasonable period during which you are likely to have to maintain operational controls over the site, in terms of leachate and landfill gas management. It also represents a period over which costs can be determined with a reasonable degree of accuracy and after which detailed estimates become less and less meaningful. Shorter periods may be agreed where you can demonstrate an effective mechanism for the rapid stabilisation of the landfill waste mass (e.g. a system for the introduction of leachate back into the waste mass with necessary management infrastructure and procedures in place), which we have approved.
- 4.5 Sites that will accept waste that do not fall within the Landfill Directive definition of inert² (e.g. construction and demolition waste, plastic, wood etc) must be permitted as sites for non-hazardous waste. Detailed cost estimates must be presented for a 60 year aftercare period unless you can demonstrate that the waste mass will be stable in a shorter time period. In those cases detailed cost estimates must be provided for the relevant period.

Landfill for Inert waste

- 4.6 For landfills for inert waste you must provide detailed cost estimates for a minimum of 3 years post-closure. This will cover; post-closure monitoring for a minimum of two years, plus one year for you to produce a report and for us to assess any data arising from that monitoring.

Closed Landfills

- 4.7 FP was not required for landfills licensed under the Control of Pollution Act 1974. It was introduced in 1994 by the Environmental Protection Act 1990. Where closed landfills licensed after 1994 have FP, it must be maintained.
- 4.8 For all landfills that were operational in July 2001 ('existing sites') operators either applied for a permit to continue to operate under the Landfill Directive or closed their site. FP was agreed for all sites where a permit was issued. Existing sites that were not permitted under the Landfill Directive went through a process to ensure that the site would be properly managed and monitored in the aftercare phase. This included the installation of appropriate pollution prevention and control measures and aftercare monitoring. When such sites entered the aftercare phase, we accepted your 'closure plan' as a commitment that appropriate management controls were in place and would be maintained. We do not therefore intend to require FP at any closed sites that do not already have it.
- 4.9 Where permits for landfills that were not permitted under the Landfill Directive are transferred, we will not require FP to be established by the transferee, providing appropriate pollution prevention measures, maintenance and monitoring are in place and the transferee confirms through a closure plan (or working plan) that they will be maintained during the aftercare phase.

² Landfill Directive, Article 2(e)

Contingency sum

4.10 Irrespective of the time estimated for aftercare, your calculation must include a 'contingency' sum. This is to ensure that once the period estimated for managed aftercare is over, there are funds available should continued site management be necessary. The contingency sum must be available until the permit is surrendered. If managed aftercare is unnecessary at the end of this period you can apply to surrender the permit. If we accept the surrender application any residual cash sum will be returned to you.

Inflation and discounting

4.11 *Inflation.* You must calculate provision in 'today pounds' (the value at today's prices). You must not account for the inflation rate at the time the provision is calculated. We will regularly review the financial provision to take account of inflation as defined in the performance agreement.

4.12 *Discounting.* You must not discount future expenditure to net present values. We will consider proposals for discounting only where there is a consistent and proven real rate of return on the funds (which does not compromise their security or availability), after a realistic assessment of the effect of inflation. All such proposals must be referred to the Financial Provision Standing Group (FPSG) see Section 7.

Calculating the sum

4.13 When we receive a proposal, we will consider the detailed costs under the following headings for landfills for hazardous or non-hazardous waste. Each heading will have a series of individual expense types (explained in more detail in Appendix A1):

- Environmental monitoring
- Capping
- Cap maintenance
- Leachate management
- Landfill gas management
- Surface water management
- Security (e.g. gates and fencing)
- Production of site reports (if not included in monitoring)
- Specified events

4.14 Your detailed cost estimates for landfills for inert waste will need to consider the following (explained in more detail in Appendix B1):

- Environmental monitoring
- Surface water management
- Security (e.g. gates and fencing)
- Production of site reports (if not included in monitoring)
- Specified event (if appropriate)

4.15 We must be satisfied that the costs of the obligations arising from the permit are covered. We therefore require that you explain the assumptions you have made. These must include; leachate quantities produced, infrastructure replacement rates, cap monitoring and maintenance, environmental monitoring regimes etc., and how these reflect permit or regulatory requirements. We will also consider how the size of the site / phase(s), in relation to, for example, the number of monitoring boreholes, links into the costs.

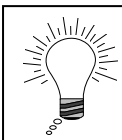
4.16 As you are making provision for any future expenditure, we need to agree a 'cost profile'³, not just the amounts.

³ Cost profile – Pattern of costs which builds during the operational phase of the site to a maximum at site closure, when risk is likely to be highest. Costs then drop as the fund is spent on aftercare.

4.17 We have included more detail on how to develop a proposal for each heading in Appendix 1. This is supported by template spreadsheets for landfills for hazardous and non-hazardous waste ([Financial Provision spreadsheet – haz and non-haz](#)) and; landfills for inert waste ([Financial provision spreadsheet - inert](#)). We have made these spreadsheets available to assist you, but they should not be considered to be 'standard' templates that will be acceptable for all FP assessments. We will consider any alternative that achieves the objectives outlined in section 3 and elsewhere in this section. The templates may need to be varied in certain site-specific circumstances.

Specified Events

- 4.18 You must provide risk assessments as part of any landfill application. These will identify the hazards and potential risks associated with a particular site. The assessments must include an estimate of the size of the hazard and the potential impact on the environment should control measures fail, taking into account the likelihood of their occurrence. An evaluation must also be made of the significance of each hazard on the 'receptors' identified.
- 4.19 Where a permit requires landfill gas, surface water, groundwater and/or leachate management you must make financial provision for maintenance, repair and replacement of the relevant infrastructure depending on the likelihood of its failure.
- 4.20 In Table 1 we have provided some examples of theoretical specified events, estimated the likelihood of an occurrence during a 60 year aftercare period and set out the types of works likely to be required under each scenario. For example, permit conditions will define the standard to which a liner should be provided and maintained. Your application must specify remedial action to be taken in the event of the liner leaking. The FP must cover the cost of repair of the liner or some other remedial action to prevent or reduce the impact of leachate escape, such as the provision of a bentonite cut off wall.
- 4.21 We will only require FP for justified and definable specified events. We will need to agree these with you early on in the application process. FP will not cover potential third party claims arising as a result of pollution incidents.



Financial provision is not an alternative to the provision of safeguards in the permit or management system necessary to prevent pollution of the environment or harm to human health.

Table 1 – Example specified events and possible solutions

Likelihood in 60 years	Relevant Pollution Event	Remedial Action	Comment
Very High	Polluted surface water via leachate breakouts	Intercept seepages, install cut off	Assume 10 breakouts (include pipes) Length and depth of trench dependant upon extent of plume
		Install leachate extraction wells	Number of wells
High	Leachate pipeline failure	Investigate and repair failure	Average 20% of total installation costs
High initially	Gas migration	Install cut off trench and vent/pump	Length and depth of trench dependant upon extent of migration
Medium	Polluted groundwater discovered in boreholes	Bentonite cut-off, fin drain and removal from across travel path Additional extraction wells/ increased pumping	Length and depth of trench dependant upon extent of plume Number of well/ number of cells affected
Medium	Leachate build-up (failure of collection system)	Install leachate wells and pumps	Install wells
Medium	Fire deep seated in complete cell	Locate fire, install clay cut off around area, weight surface with additional material	Materials available on site
		Relieve internal pressure with pumping wells	Install new wells (perimeter and internal)
Low	Explosion in Environmental Management Facility	Divert leachate/gas flow, arrange intermediate operation, repair damage	Leachate plant replacement Temporary flare installation
Low	Liner breached in one cell	Dig out cell, repair liner, replace waste	Relate to average cell size

NOTE: This table is included for illustrative purposes only and is not exhaustive. Specified events must be determined in respect of each permit. The likelihood of an event occurring and the remedial action you will take if it does occur should be established as part of the site specific risk assessment.

5 Mechanisms to make financial provision

5.1 We do not dictate how you should make financial provision. We will consider any mechanism that meets the following objectives:

- the amount is **sufficient** to cover the obligations of the permit;
- the mechanism is **secure** for the duration of the permit; and
- that the money is **available** when required.

5.2 FP funds must be available to you such that the funds can be used to discharge the obligations of the permit.

5.3 The following are the principal mechanisms that we will accept for demonstrating FP:

- Renewable bonds
- Escrow accounts
- Cash deposits with the Agency
- Local Authority Deed Agreement
- Trust based investment portfolios

More detail is provided in [Appendix 2](#)

Additional mechanisms for making financial provision

5.4 We will consider any proposals as to how you wish to make provision. In your proposal you must provide the following;

- A general description of the 'financial security' and how it works,
- Evidence that the funds are **sufficient** (see section 4),
- Evidence that the funds are **secure** - particularly any financial risk associated with the mechanism and details of how the funds are protected from misuse,
- Evidence that the funds will be **available** when required – including how and when you will access funds and any constraints on that access (particularly concerning premature or delayed closure),
- An explanation of how inflation / discounting or tax implications have been addressed,
- An explanation of any other financial risk associated with the mechanism (such as the financial strength of any parties involved) and how these have been addressed.

5.5 We have considered and have not accepted mechanisms that do not provide adequate financial provision against the three tests. In particular the following mechanisms on their own do not offer adequate security that funds will be available when required;

- Provision in accounts
- Parent company guarantees for commercial landfills
- Overdrafts
- Annually renewed insurance

Mechanism for non-commercial landfills.

5.6 Non-commercial landfills ('in-house' landfills) are those that only accept waste from the on-site producer, do not accept waste as a separate commercial activity and therefore do not compete with other landfills. You may be a minor subsidiary of a diverse business with credit ratings similar to that of a bank. In such cases where the parent company is financially independent of the subsidiary and demonstrably not reliant on the financial performance of the operator we may accept specific mechanisms (such as parent company bonding). These proposals must be referred to the FPSG.

Mechanism for publicly owned / operated sites (e.g. Local Authorities)

5.7 Where you are underwritten or otherwise guaranteed by a public body, which will always have access to funding to discharge the permit obligations, we will agree a simple performance agreement to demonstrate that provision has been made. The public body needs to satisfy themselves that they are able to accept the responsibilities arising from the permit obligations, now and in the future, and to note that the obligations may be reviewed during the permit's lifetime.

6 Use of funds/ call-down of funds

- 6.1 You will normally access FP funds in arrears after work has been done and in accordance with the agreed 'cost profile', to assist you to meet the obligations of your permit. You will undertake the works set out in a particular year of aftercare and will reclaim that expenditure from the 'aftercare fund'.
- 6.2 However, the FP mechanism may provide funds to you where you are unable or unwilling to fund the required works from your ongoing activities. A bond which is payable to you could take this form. The performance agreement with us would set out under what circumstances a bondsman would pay-out the funds. As we would pursue enforcement action where the obligations of a permit were not being discharged, pay-out could be triggered by the service of an enforcement notice or by a High Court injunction. Subsequent access to the funds would be subject to the terms of the performance agreement. You will have to make up any funds used where there is a remaining obligation.
- 6.3 Some FP mechanisms may be short-term products that are agreed on a 'rolling-renewal' basis, such as renewable bonds. Where products are not renewed within the set renewal period this too would act as a trigger for pay-out. The funds would then be available and held ready for use. Subsequent access to the funds would be subject to the terms of the performance agreements with us.

7 The Financial Provision Standing Group

- 7.1 Negotiation of FP and particularly new FP mechanisms involves a number of disciplines and falls within the scope of both our Financial and Non-financial Schemes of Delegation. The Financial Provision Standing Group (FPSG) is an expert group attended by representatives from Finance, Legal, Operations and Environment and Business directorates that can assist staff, promote consistency of approach and provide generic advice to you.
- 7.2 If you wish to submit proposals for new FP mechanisms, addressing the topics listed in paragraph 5.4 above you are advised to submit them in writing, in advance of any permit application, to the National FP Team (NFPT) at; Financial_Provision-Competence_Help@environment-agency.gov.uk.

8 The Assessment Process

- 8.1 Our area officers will advise you during pre-application discussions what existing mechanisms are available to demonstrate that you can provide FP to satisfy the obligations of your permit. You should discuss your proposals as early as possible to avoid unnecessary delays in processing your application.
- 8.2 On receipt of an application a summary of our process is as shown in the flow chart in [Figure 1](#).
- 8.3 You must provide details of the proposed mechanism as part of the permit application and provide an expenditure plan detailing costs and cost profile.
- 8.4 NFPT will send you a template 'agreement', relevant to that mechanism. You (and your bondsman/ bank, where appropriate) must confirm acceptance of the wording of the agreement in writing.
- 8.5 NFPT will review the Expenditure Plan and will consult the NPS Permitting Officer where necessary.
- 8.6 NFPT will confirm that the expenditure plan is acceptable, or suggest amendments. They will liaise with you over revised calculations where necessary.
- 8.7 Once the expenditure plan is agreed, NFPT will develop a cost profile.
- 8.8 NFPT will normally produce a site specific draft agreement (details dependent upon the specific mechanism chosen), for your approval: and a site specific draft bond or mandate (details dependent upon the specific mechanism chosen), for your bondsman / bank approval. On receipt of these approvals, the NFPT will produce the final agreements (engrossments) for your execution: and final bond or mandate documentation for execution by the bondsman / bank.
- 8.9 You must sign and return the undated engrossments
- 8.10 NFPT will sign and complete the agreement on behalf of the Agency and send copies to you.
- 8.11 Our NPS permitting officer will receive confirmation that FP is in place (or will be before commencement of disposal operations) and note it in the permit decision document. A copy of this confirmation will be held on file.
- 8.12 NFPT will undertake reviews to ensure the cost profile matches changes in inflation, in accordance with the agreement.
- 8.13 The FPSG will be advised where it is proposed to refuse an application on the grounds of financial provision.

Related documents and references

Directives

The Landfill Directive 1999 (1999/31/EC)

Council Decision (2003/33/EC)

Directive of the European Parliament and of the Council on waste (2008/98/EC) – on waste and repealing certain directives

Regulations

The Environmental Permitting (England and Wales) Regulations 2010

Guidance

Environmental permitting guidance - the Landfill Directive, Defra, 2009

Environmental permitting regulatory guidance series No. LFD1, Landfill Directive, Environment Agency, 2010

How to comply with your environmental permit - Additional guidance for Landfill (EPR 5.02), Environment Agency, 2009

Supporting documents

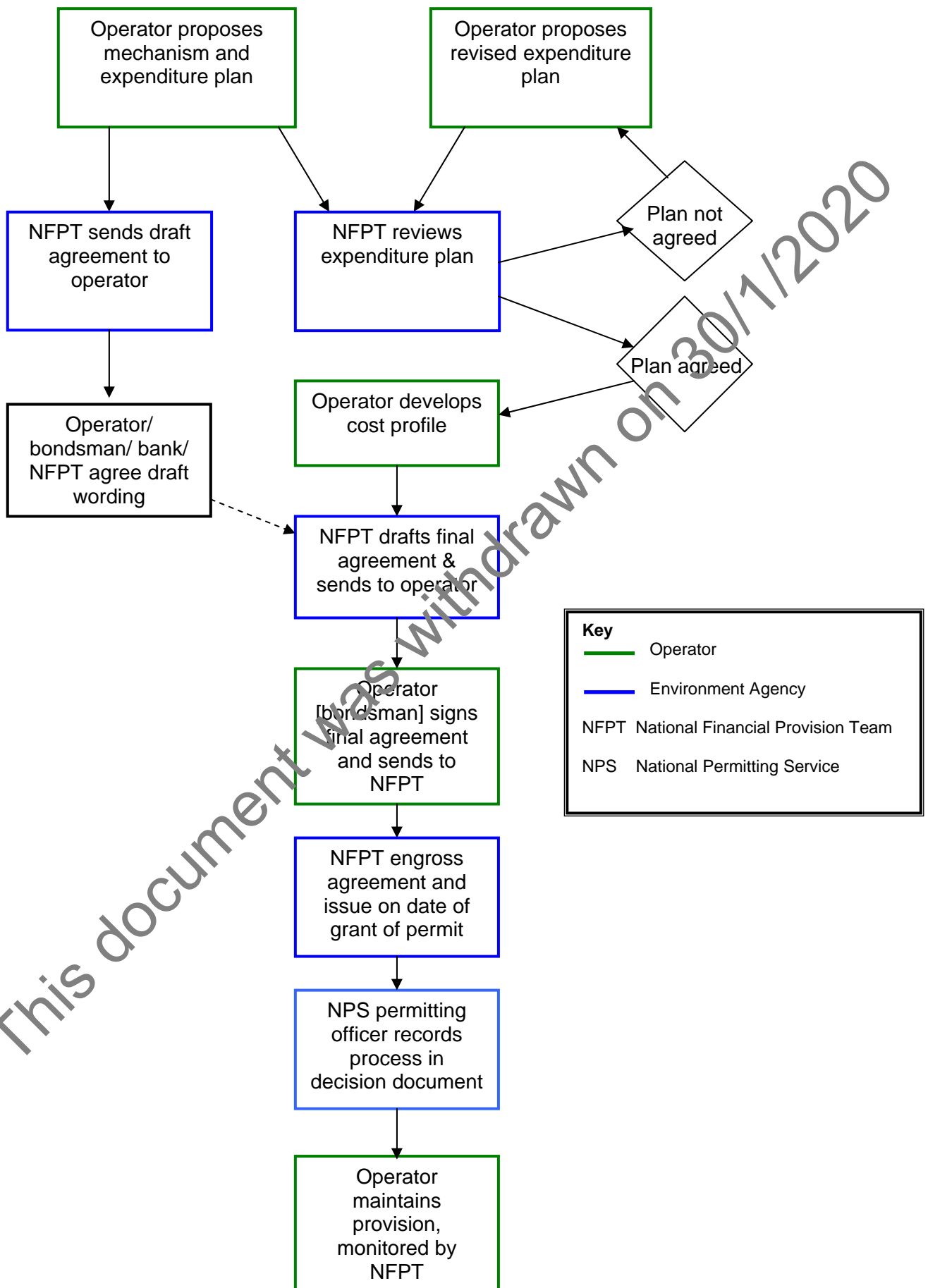
[Financial Provision spreadsheet – hazardous and non-hazardous landfills](#)

[Financial provision spreadsheet – inert landfill](#)

Glossary of Key Terms

Term	Description
Operation	The period of active waste disposal
Closed	The point at which active waste disposal operation at the site stops
Post-operational	The period between operation and the site entering aftercare
Definitely closed	The point at which we agree that the site can enter aftercare
Aftercare	The period between definite closure and permit surrender
Surrender	The point at which we accept that the site no longer presents a risk to the environment

Figure 1. Flow-chart of the 'financial provision for landfill' assessment process



Appendix 1. Calculating the sum

Landfill for Hazardous or Non-Hazardous waste

A1 Environmental Monitoring

A1.1 This usually comprises two costs: infrastructure replacement and sample analysis.

A1.1.1 Infrastructure Replacement. We will check that the number of leachate pumps & wells, landfill gas wells and monitoring boreholes proposed are in line with the application and draft permit.

The following design life is assumed for the purposes of calculating FP based on WMP 26B:

Infrastructure	Design Life (years)
Leachate treatment plant	30
Leachate extraction wells	25
Leachate extraction pumps	10
Landfill gas plant	30
Landfill gas wells and pipework	20
Landfill gas flare	10
Monitoring boreholes	50+

We will confirm that calculations are logical, based on the aftercare period.

A1.1.2 The monitoring regime may reduce during the aftercare period and this will be reflected in the cost profile. For estimating costs for monitoring (unless specified to the contrary in the permit), we assume that;

- The operational monitoring regime persists for 10 years after closure,
- Between 11 and 30 years after closure, the monitoring regime is 50% of the operational frequency, or LFD, Annex 3 minimum whichever is higher, and
- From year 31 onwards Landfill Directive, Annex 3 minimum requirements apply.

We have included a summary of the minimum Landfill Directive monitoring requirements in a table at the end of this appendix.

A1.2 Cap and cap protection

As for monitoring, this can be subdivided into two costs; provision of the cap and cap protection and maintenance of the cap during the aftercare phase.

A1.2.1 Provision of the cap. We will first consider whether the costs proposed are permit obligations, or whether they are planning issues. If they are planning issues (usually things like top soil application, seeding and tree planting etc.), then they are not subject to Financial Provision. If they involve the capping materials (clay or geomembrane), surface water drainage layer (stone or geocomposite), or protective soils these must be included in the costs. The amounts involved are normally not material in the context of the whole provision.

Things to consider:

- What sort of cap is proposed and what is its cost?
- Does the site require a geomembrane or will you rely on a mineral liner?
- Does the application assume that there are materials on site which may be used for capping and cap protection (i.e. you have assessed a cost for the cap placement only)? If this is proposed, we will normally ask for confirmation of this assertion.



Where the Permit requires/ allows progressive restoration of the site, the capping provision will cover the costs associated with the last phase only.

A1.2.2 Cap Maintenance. This is usually a small element of cost. For the first 30 years post-closure we might expect a figure of £200-£300 per hectare. Thereafter around £100 per hectare.

A1.3 **Leachate management**

This is normally the greatest element of cost for landfills for hazardous or non-hazardous waste Financial Provision proposals.

Elements of cost: Leachate is defined in the Glossary to Waste Management Paper 26B (WMP26B) as, "The result of liquid seeping through a landfill and, by so doing, extracting substances from the deposited wastes." This is about how you plan to dispose of dirty water and calculating the costs thereof. Total cost is a factor of unit cost and quantity or volume of leachate generation.

Leachate is normally disposed of from site by discharge to sewer or by tankering by road to sewage treatment works. The leachate may, or may not be treated before export from the site. While the effect of pre-treatment is to reduce the unit cost of off-site disposal, it brings with it costs of running the Leachate Treatment Plant and very likely its replacement. Therefore if leachate is treated prior to disposal off-site, we need to be satisfied that the treatment costs are covered.

Activity	cost (£/ m ³)
On-site treatment (including maintenance)	0.75 – 1.50
Disposal to sewer of pre-treated leachate	0.45 to £1.50
Disposal to sewer of untreated leachate	1.50 – 6.00
Tankering off site ⁴	15.00 – 30.00

These are guideline unit costs only

You can calculate the expected quantity of leachate to be generated by appropriate water balance calculations. Such calculations take account of factors like the absorptive capacity of the waste and effective rainfall.

In order to make a conservative assessment, we will assume that absorptive capacity is taken care of elsewhere in the sum.

Water balance calculation.

$$\text{leachate production (p)m}^3 = m \times (y/ 1000) \times q$$

$$\text{Leachate disposal cost (£)} = p \times z$$

Where:

Total capped area of the landfill is **m**, m²,

Long-term infiltration rate through cap is **y**, mm/per annum,

Unit cost of disposal is **z**, m³:

Leachate will be generated over **q** years (assume q = 60 unless informed otherwise, in order to arrive at a conservative figure).

NB: 1 hectare = 100 x 100m = 10,000m².

⁴ Assuming: a tanker holds 20 tonnes (or 20m³). A tanker costs ~£300.00 per trip, depending on the distances to be covered

A1.4 Landfill gas management

Costs here are based on two factors:

- (a) the number of gas wells on site, their replacement profile and replacement cost (this is generally expressed as a cost per metre of extraction well); and
- (b) the cost of maintaining and replacement of any engine or flare.

A1.4.1 (a) Monitoring and extraction wells. Expected design lives are covered in A1.1 above.

A1.4.2 (b) Gas engines and flares

Gas engines. We normally accept that if there is a gas engine on site, this will be cost-neutral as any electricity produced will generate an income. However, there may be circumstances where a gas engine is installed to generate electricity for use on site, or for sale locally, e.g. for heating greenhouses. Where the gas engine is present as the principle method of landfill gas control and it is not generating an income, you must consider the cost of its replacement using a design life of 30 years.

A1.4.3 Flares. Where there are engines on site, a flare is normally only in operation when the engine is being repaired/ maintained. Where there is no engine in place a flare has a life expectancy of about 10 years. For flares in intermittent use (as gas engine support) you may use a life expectancy of 15 years.

A1.5 Surface Water Management

We consider that this needs to cover the cost of clearing and maintaining drains. We normally ask what the total length of drains on the site is, what percentage of this is cleared each year and what is the unit cost of drain clearance (e.g. per metre)? The amount is normally a relatively small proportion of the total provision.

A1.6 Security (i.e. Gates and Fencing)

Similar to surface water management above, we normally consider how much a metre of fencing costs, how many metres of fencing is on site and what proportion of construction the operator allows for maintenance. The amount involved here is usually a very small part of the total provision.

A1.7 Production of site reports (if not included in monitoring)

Provision is generally made for two items:

- The expected cost of the final site report (£10,000/ £30,000), and
- The regular (usually annual) reports (£500/ £1,000).

The provision for the final report is carried forward throughout the life of the site; the provision for the annual reports (or whatever period is specified in the permit) reduces over the post closure period.

Summary of Landfill Directive, Annex 3 minimum monitoring requirements in the aftercare phase.

Parameter	Frequency	Number	Total/ annum	Data source (example)
Precipitation	Monthly	1	12)
Temperature	Monthly	1	12) Met office data
Evaporation	Monthly	1	12)
Humidity	Monthly	1	12)
Leachate (volume discharged)	6-monthly	1	2	Telemetry
Surface water (volume discharged)	6-monthly	1	2	Telemetry
Surface water (quality)	6-monthly	3	6	Spot sample
Groundwater (level)	6-monthly	3	6	Spot measurement, or telemetry
Landfill gas *	6-monthly	[15]	[30]	Spot measurement, or telemetry
Leachate (quality)	Annual	1	1	Spot sample
Groundwater (quality)	Annual	3	3	Spot sample
Settlement	Annual	1	1	Topographic survey

* - No minimum standards are proposed in the LFD. We consider 30 spot measurements per annum to provide a reasonable average.

This document was withdrawn on 09/11/2020

Landfill for Inert waste

We accept that the aftercare requirements of a permit for a landfill for inert waste will be different and are only likely to comprise;

B1.1 Environmental monitoring

The cost of monitoring landfill gas within the waste and possibly groundwater and surface water around the site must be included. Costs will relate to undertaking the monitoring and sample analysis. Boreholes will not need to be replaced given the short time scale over which monitoring is likely to be required.

B1.2 Cover soils and restoration

The final layer of soil on top of the waste is likely to be sub-soil, that will form a 'blinding layer' above the waste and a base for a cultivation or top-soil layer (together referred to as 'restoration soils'). This blinding layer will normally be accumulated on site during the operational phase, or may be the last loads of waste deposited. Costs will therefore principally relate to spreading these soils using appropriate plant. Planning permission related costs such as top soil application, seeding and tree planting can be excluded from the costs.

B1.3 Surface water management (See A1.5)

B1.4 Security (See A1.6)

B1.5 Production of site reports (See A1.7)

This document was withdrawn on 30/11/2020

Appendix 2. Mechanisms for demonstrating provision for landfill

A2.1 Renewable Bonds

A bond is a form of guarantee that, in this instance, will involve up to three parties

- i) the party requiring the bond (the operator)
- ii) the bondsman/ surety
- iii) the bond receiver (the Agency or an operator)

In the event of the operator becoming unable to meet the liabilities arising from the permit, there would be recourse to the bondsman to provide monies to fund any expenditure. It is therefore necessary to conduct a health check of the bondsman (this will normally be carried out by our Treasurer (Head Office)).

Understanding the basis on which the health checks will be conducted will assist operators in selecting an appropriate bondsman in advance of making their proposals for financial provision.

We cannot supply a list of "acceptable" bondsmen or financial institutions. Considering the acceptability or otherwise of a particular bondsman will depend on individual circumstances. This may include the size of the bond and the credit rating of any proposed surety, which may change with time. It may therefore be that a bondsman previously accepted does not satisfy us on a subsequent application. We currently apply the 'Standard and Poor's' or Moody's insurer ratings. We only accept 'investment grade' ratings.

Bonds may be operated in a similar way to escrow accounts in relation to the value of the bond at any point of time in the life of the site. The expenditure profile will identify the potential exposure to financial liability that may occur throughout the life of the permit.

Ordinarily bonds are taken for a fixed period of time (normally short term); this option is not therefore suitable for long term provision unless the duration of the bond will coincide with the life of the permit, e.g. at a landfill for inert waste. Because it is not possible to predict with any certainty what the duration of a permit will be, a renewable bond is more likely to fulfil our financial provision objectives.

However, the performance agreement associated with any bond contains a clause requiring the operator to renew the bond arrangement prior to the expiry of the current agreement/ bond (the bond cannot be renewed merely by way of letter, except where that letter comes directly from the surety). Failure to comply would constitute a default and would result in the existing bond being drawn upon. The monies provided by the bondsman would then be used to discharge the obligations of the permit. Legal agreements would prevent their use for other purposes. Renewable bonds are therefore suitable for long term financial provision.

A renewable bond may be for a fixed sum from day one, or it may be incremental building up or decreasing year by year as the liability on the site increases or decreases. In either case, the sum will be subject to an annual Retail Price Index (RPI) adjustment as specified in the relevant clause in the performance agreement. Our NFPT will confirm this calculation on request. We will require written confirmation from the bondsman that the bond value has been amended.

Unlike an escrow account where the value of the provision may be related to the tonnage of waste deposited (and therefore may not necessarily be predetermined), the incremental bond will follow a profile agreed at the outset and will normally be documented within a

schedule to the performance agreement. It will still be necessary to review the rate of input into the landfill and confirm that the estimated liability is adequately covered by the value of the bond at that point in time. Irrespective of whether the bond is renewable annually or every 3 years, 5 years or other period, it will be necessary to carry out the RPI adjustment annually.

A2.2 Escrow accounts

An Escrow Account is a bank account access to which is triggered by specified events. An Escrow Account is a joint account between the operator and the Agency and is operated under an appropriate Deed of Trust Agreement and bank mandate. Escrow accounts are normally cash based, although government backed security, such as treasury bonds would also be acceptable.

The NFPT will review the Escrow account regularly (at least annually) to ensure that the amounts deposited accord with the expenditure profile. The sum will be subject to an annual Retail Price Index (RPI) adjustment as specified in the relevant clause in the performance agreement. NFPT will carry out this calculation. The annual RPI adjustment to the escrow value will be communicated to the operator.

The mandate attached to the agreement is designed to facilitate our objectives. In order to do so, the document differs significantly from a typical mandate because it is intended to vary the legal rights of the bank. It excludes by agreement certain rights that would normally be exercisable by the bank as a matter of law, for example the right of set off. This means that there must be evidence of the agreement by the bank to operate the account in accordance with the agreement, to ensure that there can be no dispute at a later date. The mandate is signed by the operator, the bank and the Agency.

If the operator wishes to withdraw sums for works legitimately carried out under the permit, they will be requested to present contractor's invoices as evidence. In circumstances where there is a major withdrawal, which has not been planned for, the sum taken out will impact upon the financial profile of the account. At that time the overall sum will need to be reviewed. Where necessary, a top up should be required, in consultation with the appropriate Area team leader.

As the escrow account is in the joint names of the operator and us it is vital that bank statements are issued to both parties on a quarterly basis. NFPT must review the bank statement to ensure that the value of the deposit is in line with the agreed profile. The expenditure profile of the escrow may have been calculated upon a rate per tonne - in line with the anticipated input rate to the site. It will be therefore be necessary for NFPT to liaise with area staff to review the waste input rate and ensure that the cash available in the escrow continues to meet the potential liability at the particular point in time. Our NFPT will also have to adjust the rate per tonne annually in line with the RPI clause in the performance agreement.

Escrow accounts are a suitable means of making short and long term financial provision.

A2.4 Cash Deposits

Some operators may wish to deposit a cash lump or incremental sum into an identified Environment Agency bank account. It must, however, be secured by way of a legal agreement (normally deed of trust) to ensure that the funds are only accessed for the required purposes. Interest accruing on these deposits may off-set an annual uplift for inflation. We will need to confirm periodically that the likely obligations arising from the permit are still adequately covered by the cash deposit.

A2.5 Local Authority deed agreement

This mechanism may be considered where a local authority or public body is carrying on its own waste activities or activities by a company whose shares are wholly owned by a local authority or public body.

A2.6. Trust based investment portfolios

Cash and escrow accounts often do not attract high interest. The financial sector has developed a variety of investment products that are designed to use monies set aside for closure and aftercare works to generate higher returns. This revenue will accumulate in the investment fund and offset the need for additional payments.

Where an operator proposes such an arrangement we will assess the mechanism against our objectives. If we are satisfied that a proposed mechanism means that funds are sufficient, secure and available in a way that meets our requirements, we will accept the use of that product for making FP.

We may agree in principle to the use of certain investment products. However, we will in addition scrutinise each financial guarantee proposal to ensure the funds remain sufficient, secure and available.

This document was withdrawn on 30/11/2020

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This document was withdrawn on 30/1/2020

Product Code: GEHO0411BTQA-E-E