

SEPA Technical Guidance Note

Estimate of Amount of Financial Provision for Landfill Sites

This guidance document has been developed to assist SEPA staff in assessing financial provision submissions made by landfill operators. This document may be made available to operators in order that they may understand the assessment that SEPA will carry out. The process described relates only to the amount of provision required and not the specific form of provision.

1.0 INTRODUCTION

1.1 Purpose of this Guidance

This document provides guidance for SEPA Officers on the assessment of the proposed estimate of financial provision to be provided for landfill sites.

This document focuses solely on the amount of provision for landfill sites estimated from a full life cycle financial prediction.

1.2 Regulatory Context

Demonstration of adequacy of Financial Provision is required as part of the determination of the fit and proper status of a person (this may be a legal person such as a company or a local authority) to operate a landfill site. This is prescribed in regulation 18(4)(b) of The Pollution Prevention and Control (Scotland) Regulations 2012 'the 2012 Regs',.

Reg 18(4)(b) of the 2012 Regs states an operator will not be considered fit and proper where: 'that person has not made adequate financial provision (either by way of financial security or its equivalent) to ensure that-

- (i) the obligations (including after-care provisions) arising from the permit in relation to that activity are discharged; and
- (ii) any closure procedures required by the permit in relation to that activity are followed; '

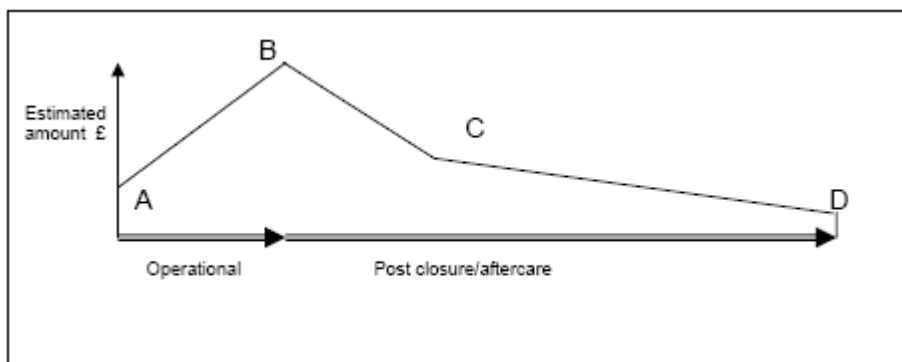
In addition, Regulation 10(2)(b) of the Landfill (Scotland) Regulations 2003 "the 2003 Regs" requires that a landfill permit include conditions ensuring that the financial provision or its equivalent required by regulation 18(4)(b) of the 2012 Regs is maintained until the permit is surrendered in accordance with those regulations. This places a duty on the operator to maintain the necessary financial provision for the whole life of the site. Regulation 13 of the 2003 Regs requires the landfill operator to ensure that disposal charges will cover setting up and operating the landfill, the costs of maintaining financial provision and the costs for closure and aftercare. All of these requirements will be imposed at landfill sites though conditions of a PPC permit.

2.0 THE FINANCIAL PROFILE

The principal areas for financial provision relate to the aftercare period in terms of necessary gas and leachate management and monitoring and maintenance of capping. In addition, allowance should be made for the final phase of capping. Also, a contingency amount should be incorporated to cover failure of pollution control systems.

This guidance is focussed on the estimated amount of financial provision that should be provided. This is based on the operator submitting a full life-cycle cost assessment identifying an estimated financial profile for the development. For the typical (biodegradable waste) non-hazardous landfill site the aftercare period could be at least 60 years. However, the estimated amount of financial provision proposed will be site specific depending on the operational proposals and the scale of the landfill but in all cases they will follow the same form of Financial Profile. This is shown below in figure 2.1 with four key amounts over the life of the site.

Figure 2.1: Typical financial provision Profile for landfill



Initial Provision:

Estimate A represents the initial sum that will require to be allowed for and included in the maximum amount. This is to cover contingencies should any difficulties be experienced. This could cover for example failure of leachate treatment system, or surface water control, or containment stability failure, leading to flooding in containment cells thus involving expensive removal by tanker. This initial sum must be derived from a site specific risk assessment conducted by the operator, taking into account the proposed scale of operations and an assessment of the risks of failure of environmental controls at the site and the additional estimated cost of contingency operations out with normal foreseen operational costs.

Maximum Financial Provision:

Estimate B represents the maximum sum that must be accrued to cover the estimated costs of capping, restorations, closure and aftercare through to final surrender of the landfill site along with contingency costs. This again must be derived on a site specific basis by the operator taking into account the proposed scale of operations, the estimated after-care period, the long term risk of the site and be related to the design leachate emission and gas production risk assessments and operational proposals for the specific landfill in question.

Commencement of passive after-care period:

Estimate C represents a break point in the rate of after-care expenditure when active controls at the site cease. This is likely to be many decades for a biodegradable landfill whilst may be only a few years for an inert landfill. At this point, although emissions are at a level where specific active controls (i.e. leachate abstraction, gas collection) are now not required, the site is still not in a condition where the permit can be surrendered. The rate of expenditure then slows as activities primarily relate to monitoring of the site and its environs.

Surrender Contingency:

Estimate D represents a contingency sum to be included to account for the surrender stage. This should include any decommissioning or final site clearance works and also an amount to reflect the uncertainty that the permit can be surrendered after the estimated after-care period (e.g. 60 years from end of disposal). This should allow for an additional period of monitoring, at a further reduced frequency until surrender conditions can be satisfied. Where operators propose that their biodegradable non-hazardous site is going to reach surrender status in less than 60 years the contingency sum should be increased to reflect the increased risk that this aspirational aim may not be achieved.

3.0 ESTIMATING THE AMOUNT OF FINANCIAL PROVISION

The estimated amount of financial provision is established and proposed by the operator based on a full life cycle costing of the technical measures at the site. Generally, submission for financial provision should comprise a spread sheet with a year by year profile of estimated total costs supported by detailed, costed breakdown of the individual components.

Three stages are required when checking the amount of financial provision:

1. The first stage is to check that the breakdown of items is sufficiently detailed such that the key components/activities can be identified and compared with the operational practices proposed at the site and covered by the landfill permit. (i.e. monitoring frequency is as per site proposals)
2. The second stage is to check that the costs associated with the key components (gas management, leachate management and monitoring) and the overall amounts of financial provision are reasonable. This should not involve scrutiny of each aspect (i.e. break down of monitoring by sampling costs, lab analysis costs etc.) but should focus on aggregated amounts (i.e. annual cost for monitoring at site) specifically checking that the principal components have been included.
3. The third stage involves reviewing the proposed form of financial provision. The actions to be taken will depend on the type of financial provision proposed and officers should contact Corporate Legal and Finance as early as possible in this regard.

Indicative costs for the typical landfill components and activities to be covered by financial provision are given in Appendix A along with indicative overall values. The amounts will of course vary from site to site reflecting market conditions, operational practices, operator costs, site location, form of construction etc. and hence it is not appropriate to take a rigid view of the requisite amount. However where an operator's proposals deviate significantly from these indicative values then the officer should seek justification for this deviation from the operator. Further assistance and advice on this aspect can be obtained from the National Operations Waste Unit.

It is ultimately the operator's obligation to ensure they are providing sufficient financial provision in relation to their landfill and the review carried out by SEPA at the point of application does not in any way absolve the duty of the operator in that respect. As the landfill evolves the estimated financial profile will change reflecting not just site operational changes but also fluctuations to market costs of materials and inflation etc. The review by SEPA of the financial provision estimates and proposals at the time of permitting must be considered in context with this aspect. The main focus should thus be on checking for the inclusion of principal items (i.e. capping, gas management, leachate management and monitoring). Detailed review of the component costs (which will change anyway over the life of the site) is not necessary so long as the overall estimated amount of provision is set at a reasonable level.

The issue of a permit following demonstration of adequacy of financial provision by the operator does not mean that SEPA has agreed that subsequent outturn costs will equate to the estimates made by the operator (i.e. due to increases in unit costs of aftercare components).

As a continual process of ensuring compliance with the duty to maintain sufficient financial provision the operator must adjust and maintain appropriate funds for long-term aftercare based on their understanding of the landfill as the site develops. Ultimately the financial provision estimates made by the operator will be heavily affected by aspects that are difficult to quantify over the 60 year plus periods envisaged.

Inflation, taxation, market cost etc. are likely to be subject to significant change over such timescales and these will all affect the requisite amount of provision. This means that financial provision estimates submitted by operators are not fixed for the life of the site. Officers should ensure that the operators demonstrate an awareness of their obligations with regard to the long term variability in amounts in their submission. Officers should avoid giving the impression that the estimates reviewed by SEPA at the time of application will be fixed in terms of providing sufficient financial provision for the full life of the site. In the long term this may not be borne out for the reason set out above and it is

the duty of the operator to make appropriate adjustment during the life of the site in order that they continue to comply with the legislative requirements.

4.0 RESPONSIBILITIES

The guidance given here is to assist Officers in forming a decision with regard to the appropriateness of the estimated amount of financial provision. Once this has been established Corporate Legal and Finance will assist with assessing the proposed form of financial provision.

For any **new** landfills authorised under the Pollution Prevention and Control (Scotland) Regulations 2012, or where an application is made for the **variation** of a landfill authorisation where that variation increases the financial liability associated with the authorisation (for example, for the construction of a new landfill cell), funds will require to be secured (ring fenced) using a financial provision mechanism which has been approved by SEPA.

The amount of financial provision required to be ring-fenced would be in relation to the waste activities which are the subject of the variation only, not for the entire financial liability associated with the site. For example, for a new landfill cell, we would expect the landfill operator to make ring fenced provision for the liability associated with the new cell plus a proportion of monitoring, capping, gas extraction and other relevant costs. SEPA also reserves the right to require an applicant to demonstrate financial provision through ring-fenced funds where it is beneficial as part of a transfer application.

Officers should contact Corporate Legal and Finance at as early a stage in the permit determination period as possible in this regard.

5.0 LIMITATIONS

This guidance applies only in Scotland. The Guidance may be subject to periodical review and be changed or withdrawn in light of technological developments, regulatory or legislative changes, future government guidance or experience of its use. SEPA reserves its discretion to depart from the guidance and to take appropriate action to avoid any risk of pollution or harm to human health or the environment.

6.0 IMPLEMENTATION

For applications for new authorisations, and variations of authorisations, implementation is effective immediately following the date of introduction of this guidance.

For applications for new authorisations and variations of authorisations which are being formally assessed by us at the time this guidance is introduced, SEPA will allow six months from the date of introduction of this guidance for these applications to be determined using the guidance which was current at the time of the application. If the applications have not been determined within six months of the introduction of this guidance, SEPA will require applicants to meet the new requirements in this guidance.

Appendix A - Landfill activities: Indicative costs of key Items

Rates for landfill lining		rate (£'s)
2 mm HDPE smooth (base/sides)	m ²	5.00
2 mm HDPE textured (base/sides)	m ²	4.50
6mm GCL (approx 4900 g psqm) basal landfill cell	m ²	3.00
Typical inert landfill capping rates		
Regulating layer		
200mm regulating layer	m ²	1.60
500mm subsoil; Increased to 650mm	m ²	5.00
Hessian layer	m ²	0.40
150mm topsoil layer	m ²	2.25
Grass seeding	m ²	0.60
Typical non- hazardous landfill capping rates		
Earthworks		
Site clearance (pipework etc.) and prep work (eg. blinding layer.)	ha	810.00
Excavation of waste material		
Waste to be excavated from the embankments and disposed in cells	m ³	1.30
Regulating layer		
200mm regulating layer	m ²	

		1.60
Excavation ancillaries		
Preparation of excavated surfaces	m ²	0.10
Capping barrier		
Surface water drainage geocomposite layer	m ²	1.70
Capping barrier 1mm LLDP liner.	m ²	3.30
6 mm GCL	m ²	2.70
Geotextile protection typically 1,100 g psqm product	m ²	3.50
Gas drainage geocomposite layer	m ²	2.00
Additional layer for hazardous 1mm LLDP liner.	m ²	3.00
Final layer		
850mm clay subsoil layer	m ²	7.70
150mm topsoil layer	m ²	2.30
Grass seeding	m ²	0.60
Typical gas collection costs		
Gas collection pipework network 90-125mm HDPE (typical site 2000m)	m	7.20
Gas extraction wells (frequency 1/1600m ² cap area)(typical site 25nr)	nr	2,250.00
Gas well head (typical site 25 nr)	nr	800.00
Gas carrier pipe HDPE 160mm dia (typical site 200m)	m	

		9.00
Gas main; HDPE 250mm (typical site 400m)	m	26.00
Condensate trap		830-1400 /trap
Maintenance and operation of flare and abstraction well field (typical site) 40,000m²		
Servicing flare		2,000/yr
Booster replacement /five yrs		8000
Monitoring/balancing		9600/yr
Maintaining monitoring system		1200/yr
Replace gas wells (10%/yr)		6,000.00
Miscellaneous gas equipment (provisional)	item	15,000.00
<i>Note: it is assumed that the capital cost of the gas flare Installation has been previously expended.</i>		
Fencing to well heads	m	24.00
Construction of swales	m	15.00
Typical leachate costs		
Leachate tankering	tonne	typically 10-20
Leachate disposal	tonne	typically 10-35
Leachate recirculation	m ²	0.80
Leachate well replacement	item	3000-5000
Leachate pump replacement	item	1,00 0-4,000
Typical monitoring costs		
Landfill gas monitoring (LFG analyser)	well	6.00

Other ground gas monitoring (borehole headspace testing for VOC)	well	180.00
Solid sampling and analysis	sample	100.00
Leachate monitoring	sample	70.00
Surface water monitoring	sample	120.00
Groundwater monitoring	sample	130.00
Waste sampling and analysis (WAC suite as per council decision 2003/33/EC)	sample	400.00
Miscellaneous		
Fencing 2m high concrete post and chain link fence	m	17
Fencing 3m high concrete post and chain link fence	m	33
Gates (typically)		1,500-2,000
Litter nets	m	45
Wheelwash (typically)		35,000-60,000
Weighbridge (typically)		24,000 – 32,000
Interceptor 3 stage (typically)		10,000
Haul road 6m wide 450mm thick internal	m	127
Aggregated total for post closure landfill gas management and leachate treatment, routine monitoring and regulatory expenses		£1.08 per tonne for putrescible waste, 5p per tonne for inert waste