SCHEDULE 3 Regulations 14(2) and 15(5)(c)

MINIMUM MONITORING PROCEDURES FOR LANDFILLS

1. This Schedule sets out minimum procedures for monitoring to be carried out to check –

(a) that waste has been accepted for disposal only if it fulfils the relevant waste acceptance criteria;

(b) that the processes within the landfill proceed as desired;

(c) that the environmental protection systems are functioning fully as intended; and

(d) that the conditions of the landfill permit are fulfilled.

2.—(1) Samples of leachate or surface water (if present) must be collected at representative points.

(2) Sampling and measuring of the volume and composition of any leachate must be performed separately at each point at which leachate is discharged from the site.

(3) Monitoring of surface water (if present) shall take place at at least two points, one upstream from the landfill and one downstream.

(4) Gas monitoring must be carried out for each section of the landfill and representative samples must be collected and analysed in accordance with Table 1.

(5) A representative sample of leachate and water shall be taken for monitoring purposes in accordance with Table 1.

Table 1

	Operational phase	*After-care phase*[1]
Leachate volume[2]	Monthly[1,3]	Every six months
Leachate composition[2,4]	Quarterly[1]	Every six months
Volume and composition of surface water[5]	Quarterly[1]	Every six months
Potential gas emissions and atmospheric pressure[6] (CH_4, CO_2, O_2, H_2S, H_2 etc)	Monthly[1,7]	Every six months[8]

Notes to Table 1

1. Longer intervals may be allowed if the evaluation of data indicates that they would be equally effective. For leachates, the conductivity must always be measured at least once a year.
2. These do not apply where leachate collection is not required under paragraph 2(1)(c) of Schedule 2 in accordance with Paragraph 2(2) of that Schedule.
3. The frequency of sampling may be adapted on the basis of the morphology of the landfill waste (in tumulus, buried, etc) (but only if the Chief Inspector considers that the conditions of the landfill permit should allow for it).
4. The parameters to be measured and substances to be analysed vary according to the composition of the waste deposited. They must be specified in the conditions of the landfill permit and reflect the leaching characteristics of the wastes.
5. On the basis of the characteristics of the landfill site, the Chief Inspector may determine that these measurements are not required.
6. These measurements are related mainly to the content of the organic material in the waste.
7. CH_4, CO_2, O_2 regularly, other gases as required, according to the composition of the waste deposited, with a view to reflecting its leaching properties
8. Efficiency of the gas extraction system must be checked regularly.

3.—(1) The sampling measurements taken must be sufficient to provide information on groundwater likely to be affected by the discharge from the landfill, with at least one measuring point in the groundwater inflow region and two in the outflow region.

(2) The number of measurements referred to sub-paragraph (1) may be increased on the basis of a specific hydrogeological survey or the need for an early identification of accidental leachate release in the groundwater.

(3) Sampling must be carried out in at least three locations before filling operations in order to establish reference values for future sampling.

4.—(1) The monitoring of groundwater shall be carried out in accordance with Table 2.

(2) The parameters to be analysed in the samples taken must be derived from the expected composition of the leachate and the groundwater quality in the area.

(3) In selecting the parameters for analysis, the mobility in the groundwater zone must be taken into account.

(4) Parameters may include indicator parameters in order to ensure an early recognition of change in water quality (the recommended parameters are pH, TOC, phenols, heavy metals, fluoride, As, oil/hydrocarbons).

Table 2

	Operational phase	*After-care phase*
Level of groundwater	Every six months[1]	Every six months[1]
Groundwater composition	Site-specific frequency[2, 3]	Site-specific frequency[2, 3]

Notes to Table 2
1. If there are fluctuating groundwater levels the frequency must be increased.
2. The frequency must be based on the possibility for remedial action between two samplings if a trigger level is reached, i.e. the frequency must be determined on the basis of knowledge and the evaluation of the velocity of groundwater flow.
3. When a trigger level is reached (see paragraph 5), verification is necessary by repeating the sampling. When the level has been confirmed, a contingency plan set out in the landfill permit conditions must be followed.

5.—(1) Significant adverse environmental effects, as referred to in regulations 14(3) and 15(5)(b), should be considered to have occurred in the case of groundwater when an analysis of a groundwater sample shows a significant change in water quality.

(2) The level at which the effects referred to in sub-paragraph (1) are considered to have occurred ("the trigger level") must be determined taking account of the specific hydrogeological formations in the location of the landfill and groundwater quality.

(3) The trigger level must be set out in the conditions of the landfill permit whenever possible.

(4) The observations must be evaluated by means of control charts with established control rules and levels for each downgradient well.

(5) The control levels must be determined from local variations in groundwater quality.

(6) The topography of the site and settling behaviour of the landfill body shall be monitored in accordance with Table 3.

Table 3

	Operational phase	*After-care phase*
Structure and composition of landfill body	Yearly	
Settling behaviour of the level of the landfill body	Yearly	Yearly reading

Note to Table 3

Data for the status plan of the relevant landfill: surface occupied by waste, volume and composition of waste, methods of depositing, time and duration of depositing, calculation of the remaining capacity still available at the landfill.