Part B of Application Form for the Landfill Sector:

Name of the Permitted Installation (Repeated from Question A1.2)

Notes to the Applicant – please read before completing this Form:

1. The Part B Form is designed so that you can provide the necessary information from your proposed programme of risk-based design, construction and operation for your permitted installation. The Form tells you the information we need and the way in which we need it to be provided.

2. Before you complete the form:

   - You should have developed a conceptual model of the site in relation to its environment, on the basis of a desk study and site investigation
   - This conceptual model should have informed the risk assessments (e.g. hydrogeological, stability, landfill gas) which should have been used to propose a design for the construction and operation of the permitted installation.
   - This design should have been reviewed until you were confident that the design and operation of the permitted installation will satisfy the emission standards you have identified for the site against the relevant benchmarks.

3. When you complete the Form:

   - The Form includes outline guidance on the standards required under the Landfill (Scotland) Regulations 2003 ("the Landfill Regulations") and you should also refer to the Landfill Regulations themselves as you complete the form. Complete the boxes while referring to the guidance for the standards expected.
   - You will be asked to provide a site report, specified drawings, risk assessments and appropriate management plans with the completed form.

4 For the purposes of the determination of this application:

   - The Operation, Monitoring and Control Plan means: the methods and measures, proposals and procedures which the applicant/operator intends to implement at the installation throughout its lifecycle to ensure that the permitted activities, when permitted, do not compromise the protection of the surrounding environment, in particular groundwater and surface water; protect and maintain environmental protection systems such as liners and leachate treatment systems; protect and maintain the desired waste stabilization processes within the landfill and protect against human health hazards. The Operation Monitoring and Control Plan is required to be submitted in terms of Schedule 6 (3) (15) of the Landfill (Scotland) Regulations 2003 which amend the 2000 regulations. The Plan shall inform the core production of Management Plans for the installation.
     The methods and measures identified shall detail and define that waste has been accepted for disposal only if it fulfils the relevant waste acceptance criteria; that the processes within the landfill proceed as required; that environmental protection systems are functioning fully as intended and that the conditions of the landfill permit will be fulfilled.

- Plan for Closure and Aftercare Procedures means the methods and measures, proposals and procedures which the applicant/operator intends to implement at the installation throughout its lifecycle to ensure that the permitted activities, when permitted, reference the standards for the initiation of the closure of the permitted installation, detail and define the means of ensuring definite closure of the permitted installation and demonstrate the maintenance of all necessary infrastructure until such time as the installation can be deemed to no longer pose any hazard to the environment. The Plan for Closure and Aftercare Procedures is required to be submitted in terms of Schedule 6 (3) (15) of the Landfill (Scotland) Regulations 2003 which amend the 2000 regulations. The Plan shall inform the core production of Management Plans for the installation.

- Management Plan means- the management plan identified at the time of application for issue of a permit and any subsequent amendments made to it in accordance with the conditions of the permit. A Management Plan remains the applicant's/operators document detailing and defining the steps he intends to take to secure compliance with the relevant legislation and any subsequently conditioned matters and through which such compliance is easily demonstrated. It will therefore include performance criteria for the site based upon the relevant and necessary standards of operation. The Permitted Installation shall be operated at all times in accordance with the conditions of the Permit and using the techniques and in the manner described in the appropriate management plans adopted for the installation. These adopted management plans shall be designed, structured and sufficiently detailed to allow compliance with all of the relevant requirements of the Permit. Where a permit condition conflicts with any appropriate management plan, the permit condition shall take precedence.

5. Your completed application will consist of:

- the completed application form,
- the plans and drawings that are specified in the form, and
- the hydrogeology, stability and landfill gas risk assessments on which the design, construction, operation and monitoring of the Permitted Installation are based.
- The Operation, Monitoring and Control Plan and the Plan for Closure and Aftercare Procedures which inform the development of the appropriate Management Plans.
- Sections A & F of PPC Application Form.

TABLE OF CONTENTS

1. Wastes to be accepted at the landfill

1.1. Waste types and quantities

Regulation 11 of the Landfill (Scotland) Regulations 2003 defines the types of wastes that are prohibited from being accepted at landfills.

Regulation 12 defines the types of waste that may be accepted in the different classes of landfill, with reference to the relevant waste acceptance criteria set out in Schedule 2 of the Regulations. Schedule 2 also describes general principles for the acceptance of waste into the various classifications of landfill.

Table 1

Use this table to supply a list of the wastes you will accept at your installation.

EWC code	Description including physical description e.g. solid, sludge	Landfill waste classification i.e. Hazardous, non-hazardous, stabilised hazardous waste

Table 2

The quantity of waste that is deposited in the Permitted Installation in any year shall not exceed the limits in the table below.

Annual Waste Input Limits		
Category	**Limit Tonnes/Year**	**Comments**
Hazardous Waste		
Stable, non-reactive hazardous waste		
Non Hazardous Waste (biodegradable)		
Non Hazardous Waste (non biodegradable)		
Inert Waste		
Total		

1.2. Waste acceptance criteria and procedures

Regulation 14 of the Landfill (Scotland) Regulations 2003 requires you to ensure that wastes delivered to your Permitted Installation can be accepted according to the permit conditions and the waste acceptance criteria. This must be shown by documented waste acceptance procedures that cover a basic characterisation of the waste prior to delivery to the installation, and compliance testing and on-site verification on arrival at the installation.

An outline of the interim waste acceptance criteria is set out in Schedule 1 of the Landfill (Scotland) Regulations 2003.

Table 3

Documented waste acceptance procedures require to be in place which:

Specify the waste acceptance criteria for the installation?	*Specify and detail:*
Specify the **quality** assured procedures for Level 1 Basic Characterisation of wastes and record the results?	*Specify and detail:*
Specify the quality assured procedures for and record the **results** of Level 2 Compliance testing of wastes?	*Specify and detail:*
Specify the quality assured procedures for and record the results **of** Level 3 On-site Verification of wastes?	*Specify and detail:*
Specify the sampling plan, including quality assured methods and procedures for sampling and testing of wastes and recording the results?	*Specify and detail:*
Include a check on whether the waste has been treated before delivery to the installation?	*Specify and detail:*
Specify procedures to ensure that waste is stored and handled **properly** prior to final deposit?	*Specify and detail:*
Specify procedures to ensure that wastes that have been rejected during the acceptance procedures shall be removed from installation within 24 hours of the **quarantine** container becoming full, and in any event within 5 days of receipt at the installation?	*Specify and detail:*
Specify procedures to ensure that SEPA is notified as soon as reasonably possible if a waste delivery is **rejected**?	*Specify and detail:*

Confirmatory basic characterisation testing is required for wastes which are known or suspected to contain variables whose presence or absence or concentration could affect the site classification; and wastes which have not undergone any previous basic characterization such as first-production wastes or wastes arising out of a very variable process. Council Decision of 19 December 2002.

Example: Based upon Decision of 19 December 2002; Confirmatory basic characterisation testing is not required for municipal wastes or where the operator can justify to the satisfaction of SEPA that the necessary information has previously been established and reported. Municipal waste as defined in Article 2(b) of the Landfill Directive that is classified as non-hazardous in Chapter 20 of the European Waste List, separately collected non-hazardous fractions of household wastes and the same non-hazardous materials from other origins can be admitted without testing at landfills for non-hazardous waste. Council Decision of 19 December 2002.

Example: Based upon Decision of 19 December 2002; Compliance testing to confirm the results and effectiveness of basic characterization requires to be conducted annually on each waste stream accepted at the site. The means of testing, selection of parameters and results should be documented and a record of the results made available on request by SEPA. Council Decision of 19 December 2002.

2. Conceptual model of environmental setting and installation design with supporting risk assessments

2.1. Environmental setting and installation design

You must provide a conceptual model for your installation. The conceptual model should provide an understanding of the proposed installation in its environmental setting and should address the source terms of the risk (i.e. waste), all pathways and receptors. The conceptual model must be based on the drawings listed below. One drawing can provide the information for more than one of the following, providing the drawing is clear.

Table 1

Provide scale plan(s) showing the following:

Scale drawing(s) showing the defined boundaries of the installation in relation to local environmental receptors, emission sources and monitoring points:

1. Conceptual model	
a) A plan of the Permitted Installation showing the phasing, and summarising the wastes to be deposited in each cell or phase.	*Identification number of scale drawing showing these features:*
b) A plan showing the distance from the Permitted Installation boundary to all surrounding built property, waterways and water bodies (up to 500m).	*Identification number of scale drawing showing these features:*
c) A plan and vertical cross-sections adequately characterising the local and regional geology, specifically taking into consideration vertical and lateral variability, attenuation characteristics and the natural in-situ geological barrier.	*Identification number of scale drawing showing these features:*
d) A plan showing the local topography (given for at least 500m from the Permitted Installation boundary).	*Identification number of scale drawing showing these features:*
e) A plan identifying the Aquifer type, abstractions including private water supplies and the vulnerability of the groundwater at the Permitted Installation.	*Identification number of scale drawing showing these features:*
f) A plan showing the local and regional groundwater flow directions with groundwater contours.	*Identification number of scale drawing showing these features:*
g) A scaled cross section (for each groundwater system) in the direction of predicted groundwater flow with boreholes and other relevant groundwater discharge points (e.g. springs, wetlands) identified on the drawing.	*Identification number of scale drawing showing these features:*
h) A plan identifying the areas of natural or cultural heritage and nature protection zones (2km or 5km – see Section 2.11).	*Identification number of scale drawing showing these features:*

i) A plan identifying all the potential receptors of emissions to all environmental media (groundwater, surface water, land and air).	*Identification number of scale drawing showing these features:*
j) A plan identifying all the potential pathways to the identified Permitted Installation specific receptors.	*Identification number of scale drawing showing these features:*

2. Leachate management and monitoring

a) The phasing of landfilling and the location, size and shape of hydraulically independent cells that are to be constructed.	*Identification number of scale drawing showing these features:*
b) Piping and other fixed plant & equipment for leachate collection, extraction/ recirculation, treatment and disposal, including control, monitoring and discharge points.	*Identification number of scale drawing showing these features:*
c) Leachate level monitoring points for each cell/phase.	*Identification number of scale drawing showing these features:*
d) The location of all leachate monitoring points, wells, sumps and leakage detection layers (if present) relative to the plan of the Permitted Installation and its environment.	*Identification number of scale drawing showing these features:*
e) Vertical cross-section showing constructional details and depth(s) of each leachate monitoring point, well and sump.	*Identification number of scale drawing showing these features:*

3. Landfill gas management and monitoring

a) Position of landfill gas containment system including specifications (refer to containment engineering plan and highlight importance for gas containment).	*Identification number of scale drawing showing these features:*
b) Position of in-waste gas wells and monitoring points.	*Identification number of scale drawing showing these features:*
c) Alignment of connection pipework (e.g. ring main headers and spurs with centralised control headers and spurs with outfield regulation). Indicate where this pipework will be buried and where exposed.	*Identification number of scale drawing showing these features:*
d) Other fixed plant & equipment for landfill gas collection, extraction, treatment, disposal and/or use (e.g. knock-out pots).	*Identification number of scale drawing showing these features:*
e) Control & monitoring points.	*Identification number of scale drawing showing these features:*

f) Relative heights to allow for estimation of slope of pipework.	*Identification number of scale drawing showing these features:*
g) Landfill gas flare(s).	*Identification number of scale drawing showing these features:*
h) Landfill gas energy utilisation plant and exhaust stack(s).	*Identification number of scale drawing showing these features:*
i) Perimeter landfill gas monitoring boreholes.	*Identification number of scale drawing showing these features:*
j) Perimeter landfill gas monitoring points for aerial emissions.	*Identification number of scale drawing showing these features:*
k) Nearest sensitive receptors to the Permitted Installation boundary.	*Identification number of scale drawing showing these features:*
l) Meteorological monitoring equipment.	*Identification number of scale drawing showing these features:*

4. Sub-surface structures (excluding landfill containment engineering)

The routing of all Permitted Installation drains and subsurface pipework, subsurface sumps and storage vessels.	*Identification number of scale drawing showing these features:*

5. Surface water management and monitoring

a) Surface water collection, drainage and discharge.	*Identification number of scale drawing showing these features:*
b) Surface water control & monitoring points.	*Identification number of scale drawing showing these features:*
c) The location of all surface water monitoring points relative to the plan of the Permitted Installation and its environment.	*Identification number of scale drawing showing these features:*
d) The location of any discharge points from the Permitted Installation to surface water relative to the plan of the Permitted Installation and its environment..	*Identification number of scale drawing showing these features:*

6. Groundwater management and monitoring

a) The location of all groundwater monitoring points relative to the plan of the Permitted Installation and its environment.	*Identification number of scale drawing showing these features:*
b) Vertical cross-section(s) showing constructional details and depth(s) of each groundwater monitoring point relative to the Permitted Installation engineered containment and hydrogeology.	*Identification number of scale drawing showing these features:*

7. Odour monitoring

The location of all routine odour monitoring points relative to the plan of the Permitted Installation and its environment.	*Identification number of scale drawing showing these features:*

8. Installation engineering

a) Artificially established mineral barrier.	*Identification number of scale drawing showing these features:*
b) Artificial Sealing Liner.	*Identification number of scale drawing showing these features:*
c) Leachate Collection Layer.	*Identification number of scale drawing showing these features:*
d) Leachate Collection and extraction pipework and wells.	*Identification number of scale drawing showing these features:*
e) Gas drainage layer.	*Identification number of scale drawing showing these features:*
f) Surface water drainage layer.	*Identification number of scale drawing showing these features:*
g) Leakage detection system.	*Identification number of scale drawing showing these features:*
h) Leachate storage and treatment.	*Identification number of scale drawing showing these features:*

These drawings must be to recognised scales sufficient to show the following details as specified.
Each drawing must have a label that includes:

- *title of drawing;*
- *name of the Permitted Installation;*
- *name and address of the Applicant/Permit Holder and Operator;*
- *date the drawing was made;*
- *drawing identification number; and*
- *scale of the drawing.*

3. Risk assessments

3.1. Introduction

This section provides the information on risk assessments and impact assessments that you have carried out and that are the basis for the detailed design and proposed operation of your Permitted Installation.

The Scottish Environment Protection Agency has published the following guidance on risk assessments for landfill, to which you should refer for guidance on best practice:

SEPA Framework for Risk Assessment for Landfill Sites: Geological Barrier, Mineral Layer and Leachate Sealing and Drainage.

SEPA Interim Technical Guidance Note: Hydrogeological Risk Assessment For Landfills and the Derivation of Control and Trigger Levels, Version 1.05.

In addition to answering the questions in this section, you must provide the following detailed risk assessments with your application.:

- ***Hydrogeological risk assessment;***
- ***Stability risk assessment; and***
- ***Landfill gas risk assessment.***

3.2. Hydrogeological risk assessment

The hydrogeological risk assessment must demonstrate compliance with the Groundwater Regulations 1998 ("the Groundwater Regulations") over the lifetime of the Permitted Installation and establish the technical measures necessary to comply with the Landfill (Scotland) Regulations 2003 and the Groundwater Regulations.

Please provide your hydrogeological risk assessment for the Permitted Installation which must address the following key issues:

Table 1

Provide the following information:

Permitted Installation details:

	Section/page number of hydrogeological risk assessment and any comments:
Location, including grid reference.	
Permitted Installation maps and plans (as specified in section 1 above).	
Historical activities.	
Operational phasing.	
Landfill classification	
Nature of wastes to be accepted.	
Characterisation of leachate.	
Elevation of the base of the liner across the site.	

Documented conceptual model which contains:	*Section/page number of hydrogeological risk assessment and any comments:*
Geology (vertical/lateral variability, attenuation characteristics) e.g. maps, cross-sections. Hydrology, topography, climate. .The monitoring programme for groundwater, surface water and leachate which has been used to develop the conceptual model. Hydrogeological conditions (groundwater levels, flow direction and type , groundwater quality, vulnerability, aquifer properties such as permeability)). Long term hydrogeological changes. Source term characteristics (leachate levels, chemical characteristics, short and long term changes, presence of polluting substances including List I and II substances). Water balance for the Permitted Installation. Pathways to receptors. Receptors (e.g. groundwater below/adjacent to Permitted Installation, abstractions, surface water).	

Engineering and active management (controls – rationale for proposals?):	*Section/page number of hydrogeological risk assessment and any comments:*
Capping. Lining design. Leachate drainage systems. Leachate head control. Groundwater management systems (if appropriate). Leakage detection systems (if appropriate).	

Risk assessment:	*Section/page number of hydrogeological risk assessment and any comments:*
Justification for methodology used. Likely/plausible worst case impacts on existing and potential Receptors. Quantified impact of long term failure scenarios of engineering and active management controls. Consideration of assessment limitations, safety factors and Uncertainties. Sensitivity analysis.	

Modelling (numerical/analytical):

	Section/page number of hydrogeological risk assessment and any comments:
Justification for using particular computer model, particularly in respect of the model's suitability for the Permitted Installation's hydrogeological conditions. Provide verification for third party code/models by comparison to LandSim or equivalent, including relevant equations. Supply electronic copies of all models. Identification of receptors, compliance criteria and calibration. Schematic diagrams showing relationship of conceptual model to computer model inputs. Multiple model runs to simulate different phases (time) and justified range of input parameter values. Justification for field measurements and model defaults Interpretation of model output. Reporting of maximum acceptable leachate head and contaminant concentrations in leachate.	

Groundwater control and trigger levels :

	Section/page number of hydrogeological risk assessment and any comments:
Groundwater control and trigger levels for selected polluting substances. Methods used to derive control and trigger levels. Locations for compliance monitoring. Justification for choice of environmental assessment levels for selected polluting substances.	

Surrender evaluation:

	Section/page number of hydrogeological risk assessment and any comments:
Estimate of time until application to surrender permit.	
Version and full reference for the Hydrogeological Risk Assessment report.	*Section/page number of hydrogeological risk assessment and any comments:*

A Containment Management Plan, summarising and satisfying the above items should be included in the application. Indicate the Title, Date and Reference of the Management Plan in the box below. The Containment Management Plan, appropriately detailed and prepared may, under certain circumstances, be referenced in the Permit when issued.

3.3. Stability risk assessment

In constructing a landfill liner the Applicant/Permit Holder/Operator must ensure that:

- *the placement of the waste should ensure it's stability and the stability of associated structures and in particular must avoid slippages (Stability); and*
- *when an artificial barrier is used, the geological substratum must be sufficiently stable, taking into account the morphology of the Permitted Installation to prevent settlement that may cause damage to the barrier (Integrity).*

Therefore in establishing the various design standards they must be defined on the basis of the risk of a failure of the structure or liner.

Basis of analysis

A landfill can be a large and complex installation, which incorporates the use of both natural and heterogeneous materials within its construction. In addition it has the potential to generate polluting substances for a significant period of time. It is essential that there is confidence that the barrier will remain effective for the period it is required and under the pressure that it will encounter in that environment.

Stability and integrity

As a landfill is a complex structure, damage can occur as a result of large and small movements/forces. You should consider the following within this risk assessment:

- *the likelihood that slippage of the landfill or lining system occurs, and as such it should be designed in such a way to ensure that such a slippage does not occur. For the purpose of this risk assessment this is the stability; and*
- *the stresses, and hence deformations, in both mineral and geosynthetic lining materials are controlled to ensure preferential flow paths are not formed (e.g. shear zones in clay liners and tears in geomembranes). For the purpose of this risk assessment this is integrity.*

It is strongly advised that the completion of this section should be carried out with the assistance of a suitably qualified and experienced geotechnical engineer.

The stability risk assessment report should contain the details of all parts of the assessment including calculations, results of models and justification for discounting a factor. It should be noted that all relevant issues will not necessarily require a detailed calculation. A review of installation and liner system specific information, will enable the likelihood of a number of possible failure conditions to be discounted. The level of analysis required should be chosen on the basis of sound engineering judgement.

A Stability Management Plan, summarising and satisfying the above items should be included in the application. Indicate the Title, Date and Reference of the Management Plan in the box below. Any Stability Risk Assessment prepared and submitted will require to be certified by a competent third party. The Stability Management Plan, appropriately detailed and prepared may, under certain circumstances, be referenced in the Permit when issued.

3.4. Landfill gas generation and risk assessment

The Landfill Gas Management Plan provides a framework for the management of landfill gas based on the site characteristics and the nature and extent of the gas control system. The plan will provide a clear and auditable route-map setting out the methods, procedures and actions to be implemented at the site for the duration of the PPC permit, up to the point of surrender. The Landfill Gas Management Plan will be prepared as a stand-alone document incorporated into the documented site operational details and procedures as part of the PPC application. Applications for Permits will be required to include 'the proposed operation, monitoring and control plan' and the gas management plan will be an integral part of any submission.

The Landfill Gas Management Plan will be developed by the operator using risk assessment. The plan will clearly set out the risk factors and then illustrate how these risks are to be minimised and monitored. The plan should be used as a tool to demonstrate that the gas control system is appropriate for the site conditions during site development, operation, closure and post-closure stages. The Landfill Gas Management Plan is a live document and will require regular reviews and updates to ensure that adequate controls are in place to meet the identified standards and objectives.

The objectives of the plan are to:

1. bring together all aspects of gas management considered during the risk assessment and proposed operational controls;
1. provide an estimate of gas production;
2. set out performance criteria for the gas control measures;
3. set out the design objectives and principles for the gas control measures;
4. set out the methods of implementing site-specific gas management systems to:
    - prevent the migration of, and control any release of landfill gas;
    - minimise the impact on local air quality;
    - control the release of odourants; and
    - prevent harm to human health;
5. set out the installation criteria and construction quality assurance procedures for the gas control measures;
6. set out the procedures and responsibilities for installation, operation, maintenance and monitoring of the gas control measures;
7. demonstrate that performance of the control measures meets the requirements and objectives for gas management; and
8. set out the procedures for managing changes and reviewing the performance of the gas control system.

Your landfill gas management plan should be based on estimates of the rates of gas production on an annual basis (e.g. using GasSim or any other appropriate model). These estimates need to take into account the types and quantities of wastes to be accepted and, where appropriate, the characteristics of the wastes already deposited at the Permitted Installation (e.g. moisture content). All calculations and assumptions must be specified within the Landfill Gas Management Plan.

3.4.1. Landfill gas management and monitoring

To successfully complete this section, you will need to have prepared a landfill gas generation assessment and a landfill gas risk assessment for your installation, and they should be submitted in support of your application.

These assessments must provide the justification for the specifications for the design, construction and operation of your landfill gas management systems, as detailed below. These specifications will cover:

- *the design, construction, installation and CQA of the fixed components of the landfill gas collection, utilisation and flaring systems; and*
- *the Landfill Gas Management Plan which includes the documented systems, procedures and work instructions you will have in place for controlling, monitoring, inspecting and maintaining the landfill gas management systems during start-up, shutdown and operations during normal and abnormal working conditions, including emergency situations.*

The assessments and the design and operation of the landfill gas management system must provide the basis for the landfill gas monitoring plan for your installation.

Table 2

Is there a need to collect landfill gas?	*Reference of the appropriate risk assessment and page/section or drawing which provides justification:*

Are the following technical measures required:	*Reference of the appropriate risk assessment and page/section or drawing which provides justification:*
Landfill gas flaring?	
Landfill gas utilisation?	

3.4.2. Landfill Gas Collection

Table 3

A documented landfill gas management plan can be prepared and submitted for the installation that includes the following:

Gas production for installation life:	*Specify and detail:*
Gas production calculations and assumptions. Phased Development Plans for gas collection, treatment and utilisation (including extraction from operational cells, capping etc). Collection efficiency calculations and assumptions, throughout life of installation. System capacity (to ensure that sufficient capacity exists to handle maximum predicted gas generation).	

Gas system design and specification:	*Specify and detail:*
Gas pre-treatment (if applicable). Gas extraction wells. Connection pipe-work and configuration. Facilities for condensate removal. Control systems (e.g. valves, telemetry, alarm systems, interlock). Gas flares. Utilisation plant. Temporary and emergency provisions.	

Construction quality assurance:

	Specify and detail:
Roles and responsibilities. Quality assurance principles. As built documentation. Validation report.	

Operational techniques:

	Specify and detail:
Management responsibilities (e.g. utilisation plant). Routine operational procedures for extraction and collection (e.g. balancing of system). Start up and shut down procedures for flare and utilization plant. Engine by-pass procedures following mechanical failure or non-routine situation.	

Maintenance:

	Specify and detail:
Inspection programme Planned and unplanned maintenance procedures.	

Monitoring:

	Specify and detail:
System monitoring during pre-operational, operational, closure and aftercare stages (flow, pressure, composition). Meteorological monitoring.	

Action plan:

	Specify and detail:
Procedures to be implemented in the event of ingress of air into the system. Procedures to be implemented if leaks in the gas system are identified.	

Data management and recording:

	Specify and detail:
Methods of maintaining system records. Gas composition and volume records. Inspection and maintenance records. Monitoring records. Records of complaints.	

3.4.3. Landfill gas utilisation

You must show that where possible you are utilising the landfill gas; examples include electricity generation from internal combustion engines or from other means, or for space heating or for energy for industrial processes. Where this is not possible it must be flared. If your installation contains more than one type of utilisation plant please provide additional data sheets where necessary.

Table 4: Landfill gas utilisation

Is it possible to utilise the landfill gas for the production of energy?	☐ No ☐ Yes If 'No' please provide justification for not utilising the gas. *Specify, detail and reference:*
Type of gas utilisation system (e.g. spark ignition engine)?	*Specify, detail and reference:*
Thermal input? Gas input (flowrate)? Gas input as a proportion of installation production? Capacity of proposed electricity connection?	
Gas pre-treatment (primary and secondary)? Are emission sampling ports fitted to the exhaust? If not please specify how you intend to undertake representative sampling of atmospheric emissions?	

Table 5

Describe the measures in the plan to minimize the release from gas utilisation due to the following:

	Specify and detail:
NOx & Sox HCl CO Total VOC's Dioxins / Furans Noise	

3.4.4. Landfill gas flaring

If your installation contains more than one type of flare please provide additional data sheets where necessary. Reference should be made to "Guidance on Landfill Gas Flaring" (Version 2.1) jointly published by the Scottish Environment Protection Agency and the Environment Agency.

Table 6

Flare characteristics:

	Specify, detail and reference:
Type of enclosed flare.	
Type of aeration system – (e.g. pre aerated / diffusion).	
Method of combustion control.	
Function of flare? – e.g. back-up to utilisation system, excess gas Combustion.	
If flare function is a back-up to engine please state capacity (%) of utilisation system.	
What is the design capacity of the flare?	
What is the turndown range of the flare?	
Proposed retention time:	
Minimum retention time S^{-1}	
Minimum temperature O^{C}	

Table 7

Control features:

	Specify and detail:
Does the flare meet the following standards?	
Are flame detectors installed in the flare?	
Are automatic flame temperature controls fitted?	
Are slam-shut valves fitted?	
Are flame arrestors fitted on the flare feed line?	
Are flame arrestors fitted at any other point?	

Table 8

What parameters are reported by telemetry:-

- flame temperature - oxygen - VOC's - flow rate Is flow rate measured or calculated? Where is telemetry data sent?	*Specify and detail:*
Are sampling ports fitted?	☐ No ☐ Yes If 'Yes' what size are the sampling ports? If 'No' please explain how you intend to undertake representative sampling of emissions? *Specify and detail:*

Table 9

Additional control strategies:

Describe measures to collect and control landfill gas where there is insufficient methane to support combustion?	*Specify and detail:*
Does your control strategy include the management of odour and lateral migration while maintaining utilisation (e.g. separate systems)?	☐ No ☐ Yes If 'Yes', please describe/specify, *Specify and detail:*
Do you have capacity in your flare system to deal with engine failure?	☐ No ☐ Yes If 'Yes', please describe/specify. *Specify and detail:*
Does your control strategy include measures additional to collection and flaring or utilisation (for example, methane oxidation, gas barriers)?	☐ No ☐ Yes If 'Yes', please describe/specify. *Specify and detail:*

3.4.5. Landfill gas monitoring

This section provides the specification for your landfill gas monitoring programme. This specification must be justified by the landfill gas risk assessment you provided.

Table 10

Use this table to demonstrate that documented systems, procedures and work instructions will be in place for all cells or areas generating landfill gas following the issue of the permit. These must ensure that landfill gas monitoring on your installation meets the specifications set out in your answers to the other questions in this section.

Documented systems, procedures and work instructions for landfill gas monitoring in place for the installation, that include the following:	
Design and construction of gas monitoring installations: a) in waste boreholes and wells; b) perimeter boreholes; c) location of monitoring installations; d) location of all in-waste, gas monitoring installations and perimeter boreholes.	*Specify and detail:*
Construction Quality Assurance: a) roles and responsibilities; b) quality assurance principles; c) as built documentation; d) validation report.	*Specify and detail:*
Monitoring measurements and schedules: a) installation reference (internal, external, perimeter, gas flares, utilization plants); b) monitoring frequency; c) parameters (including trace components of landfill gas).	*Specify and detail:*
Monitoring techniques: a) in waste and perimeter boreholes; b) gas flares; c) utilisation plants; d) surface emissions; e) aerial emissions; f) off-site monitoring in the event of migration.	*Specify and detail:*
Compliance limits and action plan: a) assessment and compliance? levels; b) procedures to be followed when levels of emissions exceed relevant specified.	*Specify and detail:*

Data management and reporting procedures: a) methods of recording and maintaining monitoring data; b) reporting routine data to SEPA; c) annual reporting of monitoring data. d) reporting in the event of exceedance of a compliance level; e) records of complaints.	*Specify and detail:*
Documented systems, procedures and work instructions for landfill gas monitoring ensure that: a) gas quality and quantity from each section of installation be identified and controlled; b) perimeter monitoring is adequate to cover the pathways of migration to identified off-site receptors; c) high permeability sections of the cap can be located; d) leaks in the gas collection system will be identified; e) volume of landfill gas sent to utilisation/ disposal system recorded; f) ingress of air into installation can be detected and located; g) sufficient balancing of the landfill gas collection system will be undertaken; h) performance of boreholes will be maintained to design specification; i) the concentration and composition of the trace gas components will be measured so that appropriate management can be undertaken? (Trace components of landfill gas which typically may be relevant because of their toxicological or odour importance are highlighted below); j) the monitoring from flares and utilisation plant is sufficient to determine the quality and quantity of emissions.	*Specify and detail:*

3.4.6. In-waste landfill gas monitoring

Sub-surface monitoring of landfill gas within the Permitted Installation is needed for the following reasons:

- to check on the quantity and constituents of gas generated within the installation;
- to check on the occurrence of sub-surface fires;
- to provide information on sub-surface conditions which may be used to manage the abstraction of gas; and
- to provide information as inputs to gas production models and/or for validating such models.

- Sub-surface monitoring is often undertaken in boreholes drilled for the purpose of abstracting gas

Table 11

Is routine monitoring to be undertaken for:	If 'No' provide justification. If 'Yes' provide proposed control level / action level.
	☐ No ☐ Yes
Methane	
Oxygen	
Carbon dioxide	
Temperature	
Carbon monoxide	

Table 12

Is annual monitoring being undertaken for trace component compounds? Please specify	*Specify and detail:*
Chloroethane	
Benzene	
2-Butoxyl ethanol	
Arsenic	
1,1-dichloroethane	
Trichloroethane	
Tetrachloromethane	
Methanol	
Hydrogen sulphide	
1,2 – dichloroethene	
Furan	
1,3 –butadiene	
Mercury	
Carbon disulphide	
Methanethiol	
Butyric acid	
Ethanol	
Ethyl butyrate	
1-propanethiol	
Dimethyl disulphide	
Ethanethiol	
1-pentene	
1 -butanethiol	
Dimethyl sulphide	
Other compounds	

The compounds above should be considered but should be amended based on-site specific information.
Refer to guidance on the sampling of raw landfill gas for further information.

3.4.7. Monitoring of emissions from landfill gas flares and gas engine exhausts

After landfill gas has been abstracted and collected, it is utilised by burning in engines to generate electricity or by flaring. These combustion processes release air pollutants whose impacts on the environment may be assessed by emission measurements, modeling, and ambient air-quality monitoring.

Monitoring flare emissions

Table 13

Please specify monitoring to be undertaken for emissions from proposed flaring

Emission monitoring determinands	Monitoring frequencies	Units	If "No" detail proposed variation and provide reference of justification in landfill gas risk assessment. Specify and detail
Unburned hydrocarbons	6 monthly from commissioning system	mg/Nm^3	
Oxides of nitrogen (NOx)		mg/Nm^3	
Carbon monoxide (CO)		mg/Nm^3	
Temperature		ºC	
Retention time		Seconds	
Gas Flow Rate		%	
Sulphur Dioxide (SO2)	Annually from commissioning system	mg/Nm3	
Hydrogen Chloride (HCl)		mg/Nm3	
Hydrogen Fluoride (HF)		mg/Nm3	
Trace compounds & Furans / Dioxins		mg/Nm3	

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Monitoring utilisation system emissions

Table 14

Please specify monitoring to be undertaken for emissions from proposed utilisation systems.

Emission monitoring determinands	Monitoring frequencies	Units	If 'No' detail proposed variation and provide reference of justification in landfill gas risk assessment. Specify and detail
Engine oil analysis	Sample extracted for laboratory analysis at the engine manufacturer's frequency	Various	
Temperature	6 monthly	ºC	
Unburned hydrocarbons		Mg/Nm3	
Oxides of nitrogen (NOx)		Mg/Nm3	
Carbon monoxide (CO)		Mg/Nm3	
Sulphur dioxide (SO2)		Mg/Nm3	
Carbon dioxide (CO2)		Mg/Nm3	
Hydrogen Chloride (HCI)	Annually	Mg/Nm3	
Hydrogen Fluoride (HF)		Mg/Nm3	
Polycyclic aromatic hydrocarbons		Mg/Nm3	
PCDDs		Mg/Nm3	
PCDFs		Mg/Nm3	
Organosulphur compounds		Mg/Nm3	

3.4.8. Perimeter landfill gas monitoring – sub-surface emissions

Sub-surface monitoring of landfill gas at the installation perimeter is needed to check on any lateral migration of gas through the sides/perimeter of the installation, and particularly on any explosion hazard.

Table 15

As a minimum, methane and carbon dioxide must be monitored for. Other gases should be measured, as required, according to the composition of the waste deposited. Use the table below to indicate the perimeter monitoring proposed for the installation.

Compound	Yes	No	Sampling frequency	Proposed control level	Example control level concentrations (% v/v)
Methane					1% above agreed background concentrations 1
Carbon dioxide					1.5% above agreed background concentrations 2
Other					

1. *based on 20% of the LEL (lower explosion limit)*
2. *based on 20% of the 8 hour British Occupational Exposure Standard (OES)*

3.4.9. Landfill gas monitoring – surface emissions

These are measurements of air-pollutants made at or just above the surface of an installation. There are two main types of measurements:

(i) Near-surface concentration measurements: these are measurements of ambient concentrations made routinely or occasionally with hand-held monitors at particular locations or along particular traverses.

(ii) Surface flux measurements: these are measurements of pollutants collected in open-bottomed containers (flux boxes) placed over particular surface positions so as to collect emitted pollutants over a defined period of time. The measurements can be interpreted in terms of the local average rate of emission per unit area i.e. flux.

Flux measurements are generally more useful than concentration measurements for managing and controlling the atmospheric emissions and impacts of installations. For example, they are more readily compared with estimates of fugitive release rates from modelling and are more easily related to climate change objectives which are expressed in terms of pollutant emission rates.

Surface emissions monitoring

Table 16

What methods to you intend to use to monitor emissions from the landfill surface?	
What frequency do you intend to undertake monitoring?	

Specify ancillary measurements and observations that will be made at times of surface monitoring to help interpretation e.g. type/state of surface, precipitation (current or recent past) etc	
How will surface monitoring be used to compare with other information on atmospheric releases (e.g. from gas production model) and to inform and improve management of landfill gas releases/ impacts?	

3.4.10. Perimeter landfill gas monitoring – aerial emissions

These are measurements of ambient concentrations of air pollutants made around the perimeter of the installation. Boundary monitoring is to be used to demonstrate how the management and regulation of the installation is affecting outcomes in receiving environments. The measurements are important for the following specific purposes:

- *to show the impacts of fugitive landfill emissions at points of maximum off-site concentration i.e. before the emissions disperse away from the installation boundary;*
- *to identify the types and levels of air pollutants being released towards receiving environments and local communities;*
- *to provide field-based estimates of the fluxes of fugitive pollutants emitted from the installation, based on dispersion back-projection;*
- *to identify the impacts of elevated gas utilisation sources (flares and engines) in near-field dispersion situations;*
- *to identify the background concentrations of pollutants in air arriving at the installation boundary from outside the landfilled area;*
- *to show the incremental impact of the installation on ambient air quality by comparing measurements at the upwind and downwind boundaries of the installation;*
- *to validate pollutant concentrations and emission rates based on gas production modeling; and*
- *to provide source term estimates for use in dispersion modeling of the impacts of landfill emissions on sensitive receptors.*

a) Perimeter monitoring

Table 17

	Doc reference/page no
Details of perimeter monitoring of methane to be undertaken.	
Details of perimeter monitoring of other compounds to be undertaken, What is the proposed sampling frequency e.g. continuous monitoring? Specify the number of sampling sites for boundary monitoring Specify the location of all perimeter-monitoring stations: • state the height above ground for perimeter sampling e.g. 1.5 m;	*Doc reference/page no*

• describe the proximity and direction of the boundary relative to monitoring station(s); and • describe the local topography relative to the monitoring station(s). Specify the proposed action and control levels for perimeter monitoring	

b) Receptor monitoring – aerial emissions

In some cases it will be appropriate to extend monitoring of potential installation impacts to sensitive receptors, where there is particular concern with the air quality impacts of the installation.

Receptor monitoring

Table 18

Are there reasons for undertaking new receptor monitoring based on:	If 'Yes' please specify. If 'No' provide reference to relevant part of the Risk Assessment.
• complaints received	☐ No ☐ Yes
• proximity of sensitive environments	☐ No ☐ Yes
• risk of exceeding recognised air-quality standards	☐ No ☐ Yes
• other installation-specific reasons?	☐ No ☐ Yes
Is there existing monitoring of air pollutants in receptor situations, and if so what do the results indicate?	☐ No ☐ Yes
If receptor monitoring is to be undertaken, please specify: • the compounds to be monitored • the number and location of monitoring stations • the frequency and duration of monitoring	
Specify the proposed action and control levels are proposed in order to decide when a change to the gas management plan is needed	

3.4.11. Landfill gas monitoring action plan

Table 19

The landfill gas monitoring action plan must identify appropriate actions to be taken if:

- abnormal changes are observed in collected monitoring data
- operational problems or failure of the gas control system are established as part of the routine inspection or maintenance programme
- a reported event e.g. an odour complaint
- migration and release of landfill gas
- impact to local air quality e.g. sub-surface fire
- release of odourants?

Doc reference/page no:

The landfill gas monitoring action plan should set out the procedures and protocols to manage:

- emergency actions to counter extraordinary events e.g. evacuation of buildings
- changes to gas management techniques and other operational control measures that are required to redefine the control of gas on installation e.g. installation of additional gas collection wells
- changes to the strategy for routine monitoring using identified monitoring protocols to provide improved data to evaluate the event e.g. increased perimeter monitoring

Doc reference/page no:

For each identified event the emergency procedures should define:

- the name of the person responsible for managing the emergency actions
- emergency notification and contact procedures e.g. SEPA and emergency services
- phone number and contact names
- assessment parameters for each emergency scenario
- description of emergency actions for each emergency scenario (what actions are to be taken and who will undertake them)

Doc reference/page no

• monitoring requirements for each emergency scenario • reporting parameters (what should be reported to the parties or persons involved) □ • completion parameters (what criteria identifies that the emergency action can be considered as complete)?? • procedures for reviewing emergencies and the performance of the gas management plan	

3.4.12 Combined emissions from utilisation plants and flares:

Table 20

Has dispersion modelling been undertaken to predict the maximum ground-level concentrations from the proposed utilisation plant and flares?	*Specify, detail and reference:*
Has dispersion modelling been undertaken to predict appropriate stack heights for both utilisation plant and flares?	*Specify, detail and reference:*
What are the predicted stack heights identified by dispersion modelling?	*Specify, detail and reference:*
What is the location of the maximum ground-level concentrations of pollutants due to emissions from utilization plants and flares, both individually and in combination?	*Specify, detail and reference:*
What is the location of the maximum ground-level concentrations of pollutants due to emissions from utilization plants and flares, both individually and in combination?	*Specify, detail and reference:*
What are the maximum ground level concentrations for relevant compounds and relevant averaging times (e.g. averaging times of National Air Quality Objectives)?	*Specify, detail and reference:*

A Landfill Gas Management Plan, summarizing and satisfying the above items should be submitted. Indicate the Title, Date and Reference of the Management Plan in the box below. The Landfill Gas Management Plan, appropriately detailed and prepared may, under certain circumstances, be referenced in the Permit when issued.

4. Installation containment engineering

4.1. Introduction

Engineered control systems include both the basal areas and side slopes of the installation void and the capping and restoration of the final waste profiles.

Use the following table to describe the containment engineering for each area of the installation and to demonstrate that the containment engineering and leachate management and collection systems you provide will ensure compliance with the Groundwater Regulations and Landfill (Scotland) Regulations 2003. The specifications in this table should have been generated during the risk assessment process (hydrogeological, landfill gas, stability etc).

Complete the Table for each area to provide specifications for the base of all pre-operational areas, side slopes for all pre-operational and operational areas and capping for all areas as appropriate. Include closed, operational and pre-operational areas. Provide plans and schematic cross-sections through the containment engineering to illustrate the specifications in each area, including any differences between basal areas and side slopes; you may refer to plans prepared for the risk assessments etc.

Table 1

Containment engineering feature	**Specifications (give specification against each heading, where feature provided) and provide a referenced cross section and design drawings for each**	**Reference of the appropriate risk assessment and page/section or drawing which provides justification for each critical specification**
Natural geological barrier:	Material: Minimum thickness (m)	
Artificially established mineral barrier:		
1. *Clay (or similar 'natural' material)*	Description Thickness (mm) Hydraulic conductivity Atterberg Limits Shear strength (specify drained or undrained) Attenuation Capacity (e.g. CEC, foc, KD) Design life Other critical design parameters	
2. *Bentonite Enhanced Sand (BES)*	Permeability (m/s) Thickness (mm) Montmorillonite content of bentonite (mg/g) Atterberg Limits Shear strength (specify drained or undrained) (kN/m^2) and factor of safety Attenuation Capacity (e.g. CEC, foc, KD) Design Life years Other critical design parameters	
3. *Other material*	Description Thickness (mm) Hydraulic conductivity Atterberg Limits Shear strength (specify drained or undrained) Attenuation Capacity (e.g. CEC, foc, K_D) Design life Other critical design parameters	

Artificial Sealing Liner:		
1. *Flexible Membrane Liner (e.g. HDPE, VLDPE etc.)*	Description (type of FML to be used) Design life Thickness (mm) Installers third party accredited for welding & installation Geophysical survey carried out post installation Number and type/size of defects assumed How protected	
2. *Dense Asphaltic Concrete*	Thickness (mm) Hydraulic conductivity Strength Materials Mix composition (bitumen type & grade, aggregate and filler properties) Physical stability (flow resistance) Chemical resistance (of bitumen, filler & aggregate) Thermal stability Longevity Maximum acceptable deformation (differential settlements) Compatibility with adjacent materials	
3. *Other material*	Description Engineering performance Thickness Design life Other critical design parameters	

Leachate Collection Layer:		
	Basal gradients Material used & grading if appropriate Thickness (mm) Hydraulic conductivity Strength Chemical compatibility	
Leachate collection and extraction pipework and wells:		
a) Leachate Collection Pipework:	Pipework layout & spacing Pipework strength Perforation layout Bedding material & thickness	
b) Leachate Extraction Wells	Type & location of well Target installed for retrodrilling Type & design of foundation Pipework material Pipework diameter Pipework strength Pipework surround material	
Gas drainage layer		
	Provided: ☐ No ☐ Yes If 'no' provide reference of the appropriate risk assessment and page/section or drawing which provides justification for each critical specification If 'Yes', give specifications	
Surface water drainage layer:		
	Layout Materials Points of discharge Pipework geosynthetics	
Groundwater management system:		
	Provided: ☐ No ☐ Yes If 'no' provide reference of the appropriate risk assessment for justification If 'Yes', give specifications below:	
	Pipework layout & spacing Pipework strength Perforation layout Bedding material & thickness	
Leakage detection system:		
	Provided: ☐ No ☐ Yes If 'no' provide reference of the appropriate risk assessment for justification If 'Yes', give specifications:	

Table 2: Documented design and construction quality assurance

Documented design and construction quality assurance programmes and procedures must be in place for new cells of the installation and other new or replacement engineering associated with those cells, which ensure the following.	
The CQA Plan covers the selection and construction of all elements of the engineered containment system (the barriers and liners), including the following as specified in the design: • earthworks formation and sub-grade? • mineral/soil liners? • drainage blanket? • geosynthetic liner? • liner protection systems? • capping and restoration? • Groundwater monitoring facilities? • Groundwater management facilities? • leachate drainage/collection layer? • collection sumps and pipework? • extraction facilities (extraction points/pumps/pipework? • distribution pipework and mains? • re-circulation facilities (blankets, injection systems, soakaways, trenches etc)? • leachate treatment facilities and infrastructure)? • leachate monitoring facilities? • gas collection and abstraction systems? • engineered gas control systems? • landfill gas flares? • landfill gas utilisation plant.? • other control systems or techniques: • surface water drainage/collection measures? • storage /attenuation ponds and/or lagoons? • pumping systems? • distribution pipework and mains? • interceptors? • soakaway systems? • surface water monitoring facilities? • surface water disposal and discharge arrangements? • interfaces with other parts of the installation e.g. capping and restoration?	*Specify and detail:* Doc reference/page no

5. Waste deposit and emplacement

Table 1: Waste deposit and emplacement procedures

Waste deposit and emplacement procedures should be in place for operational and new cells of the installation, which ensure the following:	*Specify and detail:* Doc reference/page no
1. The first layers of waste in a new cell are selected and inspected during placement to ensure that these do not cause damage to the installed barriers and liners.	
2. Waste is emplaced in each cell in such a way as to ensure stability of the mass of waste and associated structures, particularly in respect of avoidance of slippages.	
3. The maximum and minimum gradients are specified and complied with for the working face, intermediate slopes and the final slopes of the landform.	
4. Waste is emplaced in each cell in such a way as to prevent damage to the engineering of the barriers and liners, and the leachate and landfill gas management systems.	
5. Waste is discharged prior to placement in the appropriate operational areas, in a manner that prevents the releases to the environment of dusts, aerosols, litter and odour.	
6. Waste is not discharged in adverse weather conditions that may give rise to the production of airborne materials such as litter or dust.	
7. Waste is placed and compacted in the appropriate operational areas, to ensure stable surfaces and slopes and to minimise dirt being carried from the installation.	
8. The final layers of waste are selected and inspected during placement to ensure that these do not cause damage to the final capping.	
9. Appropriate handling and compaction plant and techniques are used.	
10. The size of the operational area is defined to accommodate the placement of the waste.	
11. Wastes requiring specific disposal methods are handled in such a manner as not to give rise to unstable ground or surface conditions, odours, litter, dust or other nuisances.	

6. Leachate management and monitoring

6.1. Introduction

Leachate is defined by the Landfill (Scotland) Regulations 2003 as any liquid percolating through the deposited waste and emitted from or contained within the landfill. Leachate composition is dependant on the waste types accepted and the age of the waste. Thus installations for hazardous waste will produce different leachate to installations for non-hazardous waste.

6.2. Leachate management

Table 1: Leachate management plan

Documented systems, procedures and work instructions should be in place for leachate management for your installation, that include the following:	*Specify and detail:* Doc reference/page no
1. Water balance calculations for each cell and the overall installation? 2. Extraction and collection? 3. Details of leachate treatment methods? 4. Details of leachate disposal and discharge methods and routes? 5. Temporary leachate management systems? 6. Details of system monitoring (including telemetry), during preoperational, operational, closure and after care phases (volume, meteorological conditions and quality)? 7. Details of control strategies, including phasing of operations and recirculation? 8. Operation, appropriate inspection and maintenance procedures? 9. Dissolved gas content control?	
Do these documented systems, procedures and work instructions ensure that the leachate collection, treatment and disposal system will have sufficient capacity to handle the maximum predicted rate of leachate generation for the installation, and maintain leachate levels in each separately engineered cell below those specified in the leachate monitoring programme?	*Specify and detail:* Doc reference/page no

Table 2

Use this table to describe any leachate treatment techniques and performance parameters. If or when the leachate is disposed of off site, specify where it will go to.

Plant	Your plant	Performance parameters to be specified as appropriate	Your plant's performance
Primary treatment		Average daily flow (m³/d) Peak hourly maximum (m³/h) On-line monitoring of turbidity/suspended solids Suspended solids (mg/l) on screen effluent Suspended solids (mg/l)	
Secondary treatment		Influent BOD/COD (mg/l) Effluent BOD/COD (mg/l) Mixed Liquor Suspended Solids (mg/l) Metals (mg/l) Percent dry solids in influent and effluent	
Tertiary treatment		Suspended solids (mg/l) Turbidity Conductivity Transmisivity (for UV) Coliform count Pathogenic analysis	

6.3. Leachate monitoring

This section provides the detail for your leachate monitoring programme. This specification must be justified by the hydrogeological risk assessment SEPA has published *Guidance on the Monitoring of Landfill Leachate, Groundwater and Surface Water* to which applicants should refer for guidance. The risk assessments (hydrogeological, stability, landfill gas) will have determined the leachate levels and quality necessary to ensure protection of the environment. Leachate quality monitoring is required to check that processes within the installation are proceeding as expected (e.g. waste degradation).

Leachate level monitoring is necessary to ensure that leachate collection systems are performing as designed, and to confirm that the containment engineering will protect the environment.

Assessment Criteria are used to determine whether an installation is performing as designed and are intended to draw the attention of installation management and SEPA to the development of adverse trends in the monitoring data (e.g. leachate levels). If breached, they indicate that the installation may not be performing as predicted. They should be regarded, therefore, as an early warning system to enable appropriate investigation or corrective measures to be implemented, rather than as an indication that pollution has occurred.

Compliance limits are regulatory values and a breach of these limits is expected to give rise to pollution. The compliance limits will be laid down in your permit.

Contingency Action Plans must specify the action to be taken in the event that *Assessment Criteria* and/or *Compliance Limits* are exceeded; these actions will include notification to SEPA.

Table 3

Provide details of:

- **leachate monitoring procedures (for quality and levels) to ensure that assessment criteria and compliance limits are not exceeded?**
- **Contingency Action Plans* in place in case assessment criteria and/or compliance limits are exceeded**

Specify and detail: Doc reference/page no

Table 4: Leachate level monitoring

Cell or Phase number	Leachate level compliance point* (e.g. LM 1)	Assessment level (e.g. 0.5 metre above liner or 74 m AOD)	Compliance limit (e.g. 1 metre above liner or 74.5 m AOD)	Frequency of monitoring	Relevant section & page number of Hydrogeological Risk Assessment and any comments

*Note that this should be remote from the leachate abstraction sump.

Table 5: Leachate quality monitoring

This table can be used for multiple sampling locations if appropriate.

Cell or Phase number(s)		Leachate sampling point		
Leachate monitoring determinands * (e.g. ammonium, chloride, mecoprop)	Assessment criteria (e.g. ammonium = 400 mg/L), detection limit and accuracy	Compliance limit (e.g. ammonium = 800 mg/L) detection limit and accuracy	Frequency of monitoring	Relevant section & page number of Hydrogeological Risk Assessment and any comments

7. Surface water management and monitoring

7.1. Surface water management

Table 1: Surface water management plan

A documented surface water management plan should be in place for the installation that includes the following: • the designs and CQA plan? • precipitation and flood risk calculations? • details of engineered drainage systems? • connection pipework configurations and alignments? • details of the mechanical control systems (e.g. weirs, penstocks)? • details of surface water treatment methods? • details of system monitoring, during preoperational, operational, closure and after care phases (volume, meteorological conditions and quality)? • details of control strategies, including phasing of operations? • operation, inspection and maintenance procedures?	*Specify and detail:* Doc reference/page no
The surface water management plan should ensure that the surface water collection, drainage and discharge system will have sufficient capacity to handle the maximum predicted rate of rainfall for the installation.	*Specify and detail:* Doc reference/page no

7.2. Surface water monitoring

This section provides the specification for your surface water monitoring programme. This specification must be supported by the hydrogeological and other risk assessments.

Table 2: Surface water monitoring

	Specify and detail: Doc reference/page no
Surface water monitoring provided for your landfill. **Management of surface water provided for your landfill**	

Table 3:

A surface water monitoring plan should be in place for the landfill, which answers the following questions:

	Specify and detail: Doc reference/page no
1. Are the surface water monitoring locations and schedules specified? 2. Do the monitoring schedules specify: • the surface quality determinands to be monitored? • the assessment and compliance levels or criteria? • the surface water flows to be measured? • the frequency of sampling? • the units, accuracy and detection limits for each determinand? • 3. Are monitoring and sampling of surface water carried out under quality controlled procedures in the field and the laboratory? 4. Is a Contingency Action Plan, including possible corrective measures, specified if the relevant assessment criteria are exceeded? 5. Are surface water monitoring and sampling data and results recorded, and the records kept securely? 6. Will an interpretative report of surface water monitoring results be submitted periodically (at least annually)?	

8. Groundwater management and monitoring

This section provides the specification for your groundwater management and monitoring programme. This specification must be justified by the hydrogeological risk assessment you describe in your answers to section 2.1.

Table 1: Groundwater level management and monitoring

Is management of groundwater levels being provided for your landfill?	*Specify and detail:* Doc reference/page no Give brief description of means, and reference to groundwater management plan
.	

Table 2: Groundwater monitoring plan

A groundwater monitoring plan should be in place for the landfill, which addresses the following issues:	*Specify and detail:* Doc reference/page no
1. Are the groundwater monitoring locations and schedules specified 2. Do the monitoring schedules specify: • the groundwater quality determinands to be monitored? • the groundwater control and trigger levels? • the groundwater levels to be measured? • the frequency of sampling? • the units, accuracy and detection limits for each determinand? 3. Are monitoring and sampling of groundwater carried out under quality controlled procedures in the field and the laboratory? 4. Are the borehole logs from the construction of the monitoring boreholes recorded in the plan ? (Note that it is acceptable to include them in the Hydrogeological Risk Assessment report instead)? 5. Is a Contingency Action Plan, including possible corrective measures, specified if the relevant control and/or trigger levels are exceeded? 6. Are groundwater monitoring and sampling data and results recorded, and the records kept securely ? 7. Will an interpretative report of groundwater monitoring results be submitted periodically (at least annually)? 8. Is the monitoring risk based and will it specify the requisite surveillance monitoring requirements of the Groundwater Regulations 1998.	

The table below should be used to summarise your groundwater monitoring programme, and identify the groundwater control and trigger levels that were derived in your Hydrogeological Risk Assessment.

Table 3: Groundwater monitoring

This table can be used for multiple sampling locations if appropriate, and should be reproduced for each location where the criteria are different.

Groundwater Monitoring Point(s) (e.g. BH 1, 2)				
Groundwater monitoring determinands * (e.g. ammonium, chloride, mecoprop)	**Control Level (e.g. ammonium = 0.25 mg/L), detection limit and accuracy**	**Trigger Level (e.g. ammonium = 0.5 mg/L) detection limit and accuracy**	**Frequency of monitoring**	**Relevant section & page number of Hydrogeological Risk Assessment and any comments**

*Note that you will not need to determine assessment criteria and compliance limits for every contaminant at your installation.

Table 4: Groundwater Monitoring Control and Trigger levels

Please specify monitoring to be undertaken for groundwater				
Groundwater monitoring determinands	**Monitoring frequencies**	**Units & accuracies**	**Control levels (include reference of the appropriate risk assessment and page/section or drawing which provides justification for each critical specification)**	**Trigger levels**

9. Restoration and aftercare

An aftercare plan should be developed to ensure that the installation can be maintained to avoid any pollution risk up to the point of SEPA accepting the surrender of the permit when it is no longer likely to cause a hazard to the environment.

Table 1

Procedures should be in place for existing closed cells and existing operational cells, and in place for new cells, to ensure that:	*Specify and detail:* Doc reference/page no
final pre-settlement waste levels are achieved and are not exceeded;	
all above ground management systems are adequately protected from damage (including vandalism) to ensure their continued suitability for use throughout the aftercare phase;	
all environmental management and monitoring infrastructure is maintained (and where necessary replaced) to ensure their continued suitability for use throughout the aftercare phase;	
the security measures are in place and are maintained (and where necessary replaced) to ensure their continued effectiveness in controlling access to the installation and to detect and discourage illegal dumping at the installation throughout the aftercare phase;	
the landfill gas management systems, including gas treatment, utilisation plant or flares, are operated and maintained (and where necessary replaced) such that they remain suitable for use throughout the aftercare phase;	
the leachate management systems, including extraction, treatment, and disposal, are operated and maintained (and where necessary replaced) such that they remain suitable for use throughout the aftercare phase;	
the long and short term stability of the proposed landform including the waste deposits and associated structures such as the capping layer, drainage layer, soil cover and leachate and landfill gas management structures;	
the proposed after-use and restoration does not conflict with access requirements for monitoring and maintenance of environmental management and monitoring systems and in particular the required re-drilling of landfill gas extraction boreholes and post-closure settlement surveys;	

The estimated costs of the closure and after-care of the installation for the predicted period over which the installation is likely to present a hazard are covered by the price to be charged for the disposal of waste in the installation.	

10. Nuisances

10.1 Dust and aerosol formation risk assessment

Dust is defined as any coarse or fine particulate matter that may become suspended in air. Aerosols consist of fine water droplets, such as mist and fog. Dust and aerosols are characterised by the following criteria.

Particle size range:	*Large particles (>30 μm)* will mostly deposit within 100 m of the source *Intermediate sized particles* (10-30 μm) are likely to travel up to 500 m *Smaller particles* (<10 μm) can travel 1 km or more from the source Aerosols may generate fine particulates as water evaporates during dispersion
Biological activity (bioaerosols):	Viable or total pathogens, bacterial toxins, bacterial endotoxins, cell-wall components, β-glucans, fungal spores, viruses
Chemical activity (solid associated contaminants):	e.g. Dioxins, Polyaromatic hydrocarbons (PAHs), metals (e.g. lead, nickel, cadmium, mercury)
Particle shape or phase (fibres):	e.g. asbestos, man-made mineral fibres (MMMF)

Table 1

Potential fugitive source (add rows or delete the examples/prompts below as appropriate)	**Identify nature of emission** (particle size, biological activity etc.)
Dust:	
Permitted Installation construction	
the deposit of waste (the nature of the waste)	
materials stockpiles	
waste pre-treatment operations	
landfill gas treatment	
vehicle movements along haul roads	
vehicle exhaust fumes	
Aerosols:	
leachate recirculation	
leachate treatment	
dust suppression sprays	
odour masking sprays	

10.2 Dust and aerosol monitoring

Table 2

Documented dust and aerosol monitoring plans and Procedures should be in place for the installation, which ensure the following:	*Specify and detail:* Doc reference/page no
The location of any dust and aerosol monitoring points and boreholes for your installation are specified?	
Dust and aerosol monitoring locations and schedules are specified and followed?	
Monitoring and sampling of dust and aerosols are carried out under quality controlled procedures in the field and the laboratory?	
The levels of specified dust and aerosol determinands are monitored and determined at least at the specified frequencies?	
Levels of monitored dust and aerosol determinands that exceed the specified control levels are investigated?	
Contingency actions and corrective measures are specified and implemented if the relevant control levels and trigger levels are exceeded?	
Dust and aerosol monitoring and sampling data and results are recorded and the records are kept securely?	
An interpretative report of dust and aerosol monitoring results shall be submitted periodically in accordance with the permit requirements?	

The Permit will require you to maintain a Dust and Aerosol Management Plan, summarising the actions to be taken to minimise odour under both normal and abnormal operating conditions. It also defines who is responsible for the actions described.

A Dust and Aerosol Management Plan, summarizing and satisfying the above items should be submitted. Include a copy to the application and indicate the Title, Date and Reference of the Management Plan in the box below.

10.3 Odour risk assessment

The level of detail given should correspond to the risk of causing annoyance at sensitive receptors.

Insignificant sources on a Installation which has other sources which are significant should be "screened out" qualitatively . Where receptors are remote and the risk associated with environmental impact is therefore low, the information that needs to be provided relating to sensitive receptors will be minimal. However, information relating to significant odour sources and how they will be controlled and their impact minimised will still be required.

(Scaled maps and installation plans should be provided as appropriate to show relative locations of receptors, sources and monitoring points). In some cases the nstallation boundary may have been used as a surrogate location for assessing the impact on sensitive receptors, and limits or conditions may have been set relative to the boundary. Where this is the case they should be included in the table below. Residential and commercial properties, recreational areas, hospitals, schools, parks and public open spaces should be considered as receptors. At a large Installation different receptors may be affected by different sources.

Table 3

Receptors	**Have any assessments of environmental impact been undertaken?**	**Is any routine monitoring undertaken?**	**Overview of complaints received**	**Have any limits or other condition(s) been applied?**
Describe the type of receptor and give an approximation of its extent/size/ population, as appropriate. On a large Permitted Installation different receptors may be affected by different sources. Describe the location or indicate on a plan of the locality (show too the Permitted Installation boundary where possible).	i.e. any assessments which look at the IMPACT on the receptors – i.e. not at source, although they may use source-based data as input. Such assessment could include dispersion modelling, population panels, attitude surveys, field observers, simplified olfactometry (sniff testing) or any ambient air monitoring. When were these undertaken and for what reason? What were the findings in terms of impact on receptors?	Is additional monitoring undertaken (i.e. not relating to the previous column) which relates to impact This might include regular "sniff testing" at the boundary or some form of ambient air monitoring. What form, how often, and what are typical results?	Have complaints ever been received? How many, when, and how many separate incidents or sources/receptors do these relate to? What is/was the cause and has it been rectified? If not already covered elsewhere in the Application, the Operator should confirm that he has a procedure in place for dealing with complaints.	Have any conditions or limits been imposed by any regulatory Authority which relate to sensitive receptors or to other locations which represent the effect on receptors, e.g. boundary fence?

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Table 4: Impact assessment

Do you need to carry out an environmental impact assessment for odour?	☐ No ☐ Yes If 'No', explain below why you consider that any odour or potential odour from your activities are acceptable.

Table 5: Screening out insignificant sources/emissions

Provide a brief overview of sources whose impact is insignificant. Insignificant sources can be "screened out" by using by using a common sense qualitative approach when the low level of risk is immediately apparent.

Source	Justification

Table 6 - Odour sources (including actions taken to prevent and/or minimise)

Whether or not the Installation poses a risk to the environment will depend largely on the type of waste being handled. Some wastes are inherently odorous where the impact is likely to be immediate. Others may give rise to odorous compounds because of conditions in the landfill (microbiological/chemical), and these products of reaction or decomposition will be carried in landfill gas and leachate.

Source (a)	**Describe release points (intentional or fugitive) (b)**	**Type of odour generated? (c)**	**Is any routine or occasional monitoring undertaken? (d)**	**Are there any existing emission limits or other conditions relating to these emissions? (e)**	**Describe the actions taken to prevent or minimise emissions (f)**	**Conclusion (g)**
Describe the activity or process in which odorous materials are used or generated. For example specific waste types: • re-excavation • covering of wastes. • landfill gas • leachate	For each activity or process described in column (a) list intentional or fugitive release points	Describe type/ odour thresholds/ description of odour that may be produced. Provide information on the nature of the odorous components in the landfill gas. This should included the concentration and odour thresholds of hydrogen sulphide and other key odorous trace components, as well as measured or estimated Odour Unit of the landfill gas.	This refers to monitoring at, or close to source. For each source listed – what form, how often, and what are typical results?	If not previously mentioned with respect to receptors.	For each source demonstrate that there will not be a problem under normal conditions. Training and management techniques should be included, as well as technology.	**Are there known odour problems from the Permitted Installation? Yes No**

Potential odour sources should be given, as well as actual. For example, an effluent treatment plant may not be detectable beyond the boundary under normal conditions, but if anaerobic conditions develop then it may become odorous.

Table 6 (Continued) - Odour sources (Actions to be taken in the event of abnormal circumstances)

You may identify here, events outside your control which could lead to odorous situations (e.g. extreme weather conditions or power failure). Describe the actions you propose to minimise the impact of such events (e.g. shutting down as quickly as possible or changing operating parameters). It should not include failures caused by human error, poor maintenance, predictable operational situations or weather conditions that are normal variants of local weather.

Source/release point	**Nature/cause of failure (i)**	**What measures have been put into place to prevent or reduce the risk of this failure? (j)**	**What is the outcome if there is a failure? (k)**	**What actions are taken if this occurs? (l)**	**Any other specific requirements of SEPA? (m)**
As given in column (a) (b) or (c) in the "Odour sources table"	For each source identify particular difficulties which affect odour generation, abatement or transport/dispersion in the atmosphere (specific topography may play a part here).	The proactive measures to prevent or minimize should have already been outlined in the previous table, column (f). For example collection of landfill gas. The actions that are taken to prevent its failure should be given in this section.	Where an estimate is possible and meaningful, provide an indication of how often the event described is likely to occur, how "much" odour might be expected and the likely duration of the event. Note: the use of "high", "medium" and "low" may be useful if more detailed information is not available Are complaints likely?	What actions are taken? Describe the measures that have been put into place to reduce the impact should a failure occur. These actions need to be submitted to SEPA. Such actions may be as minor as closing doors or more significant – slowing production or shutting down under adverse conditions.	For example – any requirement to inform SEPA within a specific time of the event occurring, or any specific actions to be taken, or record-keeping requirements etc.

10.4 Odour monitoring

This section provides the specification for your odour monitoring programme. This specification must be supported by your odour risk assessment described above.

Table 7

Documented odour monitoring plans and procedures should be in place for the installation, which ensure the following: (Answer for each numbered point)	*Specify and detail:* Doc reference/page no
Routine odour monitoring locations and schedules are specified and followed?	
Monitoring of odours is carried out under quality controlled procedures in the field?	
The levels of odour are monitored and determined at least at the specified frequencies?	
Levels of odour that exceed the specified control levels are investigated?	
Contingency actions and corrective measures are specified and implemented if the relevant control levels are exceeded?	
Odour monitoring and sampling data and results are recorded and the records are kept securely?	
An interpretative report of odour monitoring results shall be submitted periodically in accordance with the permit requirements?	

Table 8

Please specify monitoring to be undertaken for odour				
Odour monitoring determinands	**Monitoring frequencies**	**Units & accuracies**	**Control levels**	**Monitoring points (as designated on odour monitoring location plan)**

The Permit will require you to maintain an Odour Management Plan, summarising the actions to be taken to minimise odour under both normal and abnormal operating conditions. It also defines who is responsible for the actions described.

An Odour Management Plan, summarizing and satisfying the above items should be submitted. Attach a copy to the application and indicate the Title, Date and Reference of the Management Plan in the box below.

10.5 Birds, vermin and insects assessment

Table 9

Source of nuisance and hazard	Birds	Vermin	Insects	Receptors and impacts on receptors

10.6 Birds, vermin and insects management

You should consider the following techniques, but not be limited to them:

- *adequate compaction during waste emplacement, ensuring rapid waste emplacement;*
- *use of bird deterrent techniques such as intermittent gas cannons, pre-recorded distress calls, kites, helium balloons, birds of prey. Such techniques may be rendered ineffective due to habituation and therefore a selection of techniques should be used accordingly to ensure their overall effectiveness is maintained;*
- *in particularly sensitive locations e.g. within airport exclusion zones, the provision of a physical barrier in the form of a net may be necessary;*
- *placement of daily cover material as necessary;*
- *use of intermediate cover, as required;*
- *ensuring previously emplaced waste is not disturbed, exposed or moved;*
- *regular visual inspections of the installation; and*
- *regular visits by pest control contractors.*

Table 10

Source of nuisance and hazard	What measures are used to minimise nuisances arising from the installation in relation to birds, vermin and insects

The Permit will require you to maintain a Birds, Vermin and Insects Management Plan, summarising the actions to be taken to minimise the impacts of and nuisances arising from birds, vermin and insects under both normal and abnormal operating conditions. It also defines who is responsible for the actions described.

Where the Permitted Installation is in the vicinity of an aerodrome (as defined by the Civil Aviation Authority (CAA)) there may be a requirement from the CAA or the Ministry of Defence to ensure adequate means of bird control. In such cases the use of totally enclosed netting systems should be considered at the time of the application should a Risk Assessment so indicate.

A Birds Vermin and Insect Management Plan, summarizing and satisfying the above items should be submitted. Attach a copy to the application and indicate the Title, Date and Reference of the Management Plan in the box below.

10.7 Litter assessment

The level of detail given should correspond to the risk of causing annoyance at sensitive receptors. Where receptors are remote and the risk associated with environmental impact is therefore low, the information that needs to be provided relating to sensitive receptors will be minimal. However, information relating to significant litter sources and how they will be controlled and their impact minimised will still be required.

Table 11: Receptors

(Scaled maps and Permitted Installation plans should be provided as appropriate to show relative locations of receptors, sources and monitoring points). In some cases, the Installation boundary may have been used as a surrogate location for assessing the impact on sensitive receptors, and limits or conditions may have been set relative to the boundary. Where this is the case, they should be included in the table below. Residential and commercial properties, agricultural land, recreational areas, hospitals, schools, parks and public open spaces should be considered as receptors. At a large installation different receptors may be affected by different sources.

Receptors	**Have any assessments of environmental impact been undertaken?**	**Is any routine monitoring undertaken?**	**Overview of complaints received**	**Have any limits or other condition(s) been applied?**
Describe the type of receptor and give an approximation of its extent/size/ population, as appropriate. On a large Permitted Installation different receptors may be affected by different sources. Describe the location or indicate on a plan of the locality (show too the Permitted Installation boundary where possible).	i.e. any assessments which look at the IMPACT on the receptors – i.e. not at source, although they may use source-based data as input. When were these undertaken and for what reason? What were the findings in terms of impact on receptors?	What form, how often, and what are typical results?	Have complaints ever been received? How many, when, and how many separate incidents or sources/receptors do these relate to? What is/was the cause and has it been rectified? If not already covered elsewhere in the Application, the Operator should confirm that he has a procedure in place for dealing with complaints.	Have any conditions or limits been imposed by any regulatory Authority which relate to sensitive receptors or to other locations which represent the effect on receptors, e.g. boundary fence?

Table 12: Impact Assessment

Do you need to carry out an environmental impact assessment for litter?	☐ No ☐ Yes If 'No', explain below why you consider that any litter or potential litter from your activities are acceptable.

Table13: Screening out insignificant sources/emissions

Provide a brief overview of sources whose impact is insignificant. Insignificant sources can be "screened out" by using by using a common sense qualitative approach when the low level of risk is immediately apparent. Justification should be provided to show that these sources are not adding to a problem.

Source	Justification

Table 14: Litter sources (including actions taken to prevent and/or minimise)

Whether or not the Installation poses a risk to the environment will depend largely on the type of waste being handled at the Permitted Installation. Waste that contains light material that can easily be windblown (such as paper, plastic, polythene, polystyrene and wood shavings) obviously presents a high risk of producing litter. However, other materials (such as cardboard, textiles and vegetation) should also be considered. Activities such as transport of waste on the Permitted Installation and temporary storage etc should be included as possible sources of litter.

Source (a)	**Is any routine or occasional monitoring undertaken? (b)**	**Describe the actions taken to prevent or minimise emissions (c)**	**Conclusion (d)**
Describe the activity or process from which litter may be generated. For example: • delivering vehicles; • storage; • tipping of wastes; • compaction and covering of wastes; and • waste that has accumulated on fencing	This refers to monitoring at, or close to source. For each source listed what form, how often, and what are typical results?	For each source demonstrate that there will not be a problem under normal conditions. Training and management techniques should be included, as well as technology.	**Are there known litter problems from the installation?** **Yes No**

The Permit will require you to maintain a Litter Management Plan, summarising the actions to be taken to minimise litter under both normal and abnormal operating conditions. It also defines who is responsible for the actions described.

A Litter Management Plan, summarizing and satisfying the above items should be submitted. Attach a copy to the application and indicate the Title, Date and Reference of the Management Plan in the box below.

10.8 Noise and vibration assessments

The level of detail given should correspond to the risk of causing harm in the form of offence to man's senses, or annoyance at sensitive receptors. Permitted Installations which are inherently quiet and are therefore low risk should be screened out at the outset. Where receptors are remote and the risk is therefore low, the information required will be minimal; although information relating to noise sources will still be required and noise reduction should be achieved as far as the balance of costs and benefits will allow.

Insignificant sources should be "screened out" qualitatively (giving justification) and detailed information need not be given.

Table 15: Screening out of inherently quiet installations

Is the Permitted Installation inherently quiet with no known noise issues?	☐ No ☐ Yes If 'No', proceed. If 'Yes', justify opposite. Sufficient supporting explanation should be provided to allow the Permit Holder/Operator to be excluded from the need to provide further information.

Table 16 - Receptors *(Scaled maps and installation plans should be provided as appropriate to show relative locations of receptors, sources and monitoring points, and document references listed)*

Receptor	What is the background sound level at each receptor identified?	Is there a specified monitoring point which relates to the receptor?	How often is monitoring undertaken?	What is the sound level at the identified receptor(s) when the plant/source(s) is operating?	Have any sound level limits or other condition(s) been applied?
Describe the type of receptor and give an approximation of its extent/size/ population, as appropriate. On a large Permitted Installation different receptors may be affected by different sources.	i.e. when the plant/source is not operating.	Describe the location or indicate on a plan of the installation (relative to source locations and/or receptors). Has this been specified by SEPA or do they form part of the Operator's own system of performance checks?			Conditions/limits imposed which relate to sensitive receptors or to other locations. Include any relevant planning conditions imposed by the Planning Authority.

Table 17: Screening out insignificant sources

Provide a brief overview of sources whose impact is insignificant. This can be determined by using a common sense qualitative approach when the low level of risk is immediately apparent.

Source	Justification

Table 28 : Noise sources *(Information relating to individual sources and emissions)*

Identify each significant source of noise and/or vibration	Source reference number	Describe the nature of the noise or vibration	Is there a specified monitoring point?	What is the contribution to overall emission?	Description of abatement and actions taken to prevent or minimize emissions	Actions to be taken
List each source not considered to be insignificant – by process or activity if they can be conveniently sub-divided in this way. Mobile sources should also be identified	Give each source a reference number (which should correspond to any map or plan supplied)	Provide hours of operation for noncontinuous, infrequent or seasonal activities. Note any distinctive characteristics associated with a source, such as clatter, whine, hiss, screech, hum, bangs, clicks, thumps or tonal elements.	Have these been specified by a Regulator or do they form part of the Operator's own system of performance checks?	This relates to the relative risk associated with each source in terms of impact at sensitive receptors. Categorise each as high or medium (low risk should have been screened out above) unless supporting numerical data is available.	Where these have been imposed by a Regulator (e.g. restrictions on timing, operating hours) this should be indicated.	**Are there noise problems caused by the installation or do they exceed the benchmark values? Yes No** If yes, identify below proposals for improvement or issues that need to be addressed to meet. Include these, with timescales, in the proposed improvement programme.

Table 19

Any other relevant information should be given or referenced here, e.g. non-installation sources, on or off installation.

Table 20: Environmental noise measurement surveys *- provide details of any which have been carried out*

Have any surveys or measurements been carried out? ☐ No ☐ Yes

If 'No', proceed to the next table

Survey reference	Purpose	Locations covered	Sources identified or investigated	The outcome

Table 21: Maintenance

Do maintenance procedures specifically identify when maintenance is needed to minimise noise emissions?	☐ No ☐ Yes *Specify and detail:*
Do operating procedures specifically identify actions which are needed to minimise noise emissions?	☐ No ☐ Yes *Specify and detail:*

Table 22: Supplemental information required for complex and/or high risk installations

This additional information should be submitted only where its need is identified in discussions with SEPA. It may also be useful to any Operator who has noise problems or potential to cause noise and/or vibration-related harm in the form of offence to man's senses or annoyance in assisting to direct or prioritise activities.

Source	Potential failure scenarios	What measures have been put into place to prevent the failure or to reduce the impact?	What is the environmental impact/outcome if there is a failure?	What actions are taken if this occurs and who is responsible?
This refers to each source.	Consider all reasonably foreseeable scenarios that could increase noise to a level where it could become an issue at sensitive receptors, or could lead to non-compliance with a permit or any other authorisation. Some of these may be caused by a factor beyond the control of the operator, such as power failure.	Examples include the construction of Sound bunds /barriers around the "active" cell, further information is contained in BS 5228 1997; replacement of older installation plant with modern quieter designs (this may also improve energy efficiency); siting of noisy equipment way from receptors and accounting for prevailing wind direction; or stopping the activity altogether. The person responsible for these actions should be identified where appropriate.	Include likely duration, noise level or increase in noise level (at source or receptor) and any characteristics. If immediate action cannot be taken, the reasons should be noted. Where complaints are likely it should be discussed with SEPA in advance.	This refers to actions such as the requirement to contact SEPA should an event occur, or internal actions such as reporting requirements, verbal or written, dealing with complaints arising from the incident etc.

Any other relevant information not specifically requested above should be given or referenced here.

Noise and vibration minimisation

In many cases the measures required to reduce the impact of noise and vibration will be very installation specific but the following gives some indication of good practices to prevent or minimise noise from the installation:

- *construction of sound bunds/barriers around the "active" cell, further information is contained in BS 5228 1997 "Noise and vibration control on construction and open sites";*
- *regular and effective maintenance of plant by trained personnel;*
- *training of installation personnel in the need to minimise noise;*
- *modification of existing plant to reduce noise;*
- *replacement of older installation plant with modern quieter designs (this may also improve energy efficiency);*
- *siting of noisy equipment way from receptors and accounting for prevailing wind direction;*
- *where short term noisy operations have to be undertaken, there often has to be a trade off in terms of a higher noise level for a shorter period versus less noise but of longer duration. For example during installation preparation, working longer hours, or using more plant (or larger plant) may be preferable if it results in noisy operations being completed in a much shorter time;*
- *early notification of local residents or at least inform them in advance of work being started, likely timescale and telephone number if disturbance occurs; and*
- *regular maintenance of the access roads to repair "pot-holes"; this serves to significantly reduce noise generated by empty vehicles.*
- *Operators should ensure disposal of waste does not occur outside of the agreed operating hours specified in the Permit.*

Table 23

Location of noise sources Include intentional release points and fugitive or other releases	**Describe the actions taken to prevent or minimise emission** Training and management techniques should be included, as well as engineering controls

In some circumstances the Permit may require you to maintain a ***Noise Management Plan***, summarising the actions to be taken to minimise noise under both normal and abnormal operating conditions. It also defines who is responsible for the actions described.

Have you prepared a Noise Management Plan, summarizing and satisfying the above items?
If so, please attach a copy to the application and indicate the Title, Date and Reference of the Management Plan in the box below.

A condition will also be included in the permit to set an absolute standard. In the case where receptors were being affected or the condition was not being complied with, the operator would be required to submit an amended management scheme to SEPA for approval, failing which SEPA will amend the conditions of the permit accordingly.

11 Other assessments

11.1 Raw and auxiliary materials selection

Table 1

Use this table to supply a list of the principal materials used, and any others that have the potential for significant environmental impact.

Raw material/ function	**Chemical nature/ composition**	**Addition rates**	**Fate** **% to product** **% to water** **% to sewer** **% to waste/ land** **% to air**	**Environmental impact where known (e.g. degradability, bioaccumulation potential, toxicity to relevant species)**	**Practical alternatives for those with significant impact potential and reasons why they are not used**	**Could the material be a significant accident risk by virtue of nature or quantity stored?**
Vermin control	Insecticides & pesticides					
Fuels						
Leachate treatment – dosing, antifoam, biological solutions, etc						
Raw materials required for engineering; e.g. aggregate for roads, etc.						

11.2 Energy

The landfill sector is not considered to be a significant energy user and the opportunity for significant energy efficiency will be limited. However, a Permit Holder will be expected to have basic, low cost, physical techniques in place to avoid gross inefficiencies.

Basic energy requirements

Annual energy consumption of the activities must be presented in Table 1 below, broken down by energy source. Where energy is exported from the Permitted Installation, the Applicant should also provide this information. An example of the format in which this information should be presented is given in the table below.

Table 2

Energy source	**Energy consumption**		
	Delivered, MWh	**Primary, MWh**	**% of total**
Electricity from public supply			
Electricity from other source*			
Gas		N/A	
Oil		N/A	
Coal		N/A	
Other (Operator to specify)			

* Specify source and conversion factor from delivered to primary energy Note that the Permit will require energy consumption information to be submitted annually).

Identify and appraise all energy efficiency techniques applicable to the activities authorised by the permit by:

- *listing which energy efficiency techniques are applicable to the activities but have not yet been implemented. Include those listed under basic energy requirements AND in the further energy efficiency requirements overleaf; and*
- *stating the CO_2 savings achievable by that technique over the technique or the Permitted Installation's lifetime.*

Table 3

Energy efficiency measure	**CO_2 savings (tonnes)**	
	Annual	**Lifetime**

Where other appraisal methodologies have been used, state the method, and provide evidence that appropriate discount rates, asset life and expenditure (£/t) criteria have been employed

11.3 Accidents and their consequences

Table 4: Accident Management Plan

Complete this table for any event which could have significant environmental consequences.

Accident or abnormal release scenario	Likelihood of occurrence	Consequences of occurrence	Actions taken or proposed to minimize the chances of it happening	Actions planned if the event does occur
Flooding				
Subsidence. Applies to new installations only				
Landslides. Applies to new installations only				
Avalanches. Applies to new installations only				
Fires				
Explosions				
Major breach of installation liner				

Which of the above do you consider to pose the most critical risks to the environment?

11.4 Meteorological monitoring plan

It is important to obtain information on meteorological conditions at times of gas and air-pollutant monitoring in order to help to interpret these data. Meteorological data are relevant to interpreting all types of monitoring (i.e. sub-surface, surface, boundary and receptor monitoring), for example in terms of:

- *how representative the gas/pollutant measurements are;*
- *whether surface monitoring is at times of ingress or egress caused by changes in atmospheric pressure;*
- *which source(s) are contributing to ambient pollutant concentrations;*
- *emission rates associated with measured ambient concentrations;*
- *modelled impacts on downwind receptors; and*
- *any special factors causing particular events e.g. wind-raised dust.*

Table 5: Meteorological monitoring plan

	Specify and detail:
1. The meteorological monitoring plan should specify meteorological measurements to be taken at times of monitoring to give information on: • wind speed? • wind direction? • cloud cover or net radiation (needed for dispersion modelling purposes)? • temperature? • rainfall? • evaporation? • atmospheric humidity? • atmospheric pressure? 2. What is the temporal resolution of the averaging period? 3. Identify location where meteorological measurements are taken and show on a plan and give plan reference? 4 Is this location the same as where monitoring is undertaken? 5. Specify the height above ground at which meteorological data are measured? 6. Is the measuring equipment mounted on the side or top of a building? 7. If yes describe the monitoring position relative to the supporting building and the extension above it? 8. Describe the relative position of all buildings of comparable height within 200m of the monitoring location? 9. Describe the topography adjacent to the monitoring location; include a description of land relief relative to the monitoring position. 10. Describe the position of the monitoring location relative to any boundary monitoring?	

11.5 Environmental Management Systems

SEPA supports the operation of environmental management systems (EMSs). SEPA recommends that the ISO 14001 standard is used as the basis for an environmental management system. Certification to this standard and/or registration under EMAS (EC Eco Management and Audit Scheme) (OJ L168, 10.7.93) are also supported by SEPA. Both certification and registration provide independent verification that the EMS conforms to an assessable standard. EMAS now incorporates ISO 14001 as the specification for the EMS element. For further details about ISO 14001 and EMAS contact British Standards Institute (BSI) and the Institute of Environmental Management and Assessment (IEMA) respectively. An Operator with such a system will find it easier to complete not only this section but also the technical/regulatory requirements in the following sections.

The steps required in this section may help you to make good any shortfalls in your management system. An effective EMS will help you to maintain compliance with regulatory requirements and to manage other significant environmental impacts. The techniques listed below are the same as those required in a formal EMS and are also capable of delivering wider environmental benefits. However, it is information on their applicability to PPC that is primarily required in this Application. Provide a diagram showing your management structure. Other than for the Technically competent management of the installation, show posts, rather than names. Give the reference of the attached document here.

If you are certified or registered as above, and it covers all of the elements listed below, provide the following details

Which scheme are you certified by or registered with?

Provide a copy of your registration/certification Document reference: Certificate/Registration number:
What is the Document reference for your system?

Where is your system kept?

If you are not certified or registered or if your system does not cover all of the elements listed below you must complete the blank boxes below. In general there are 2 options for how you may respond to each point.

- *If you do intend to have a documented system, you must provide a description of how you manage each of the listed issues and the date by which your documented system will be in place.*
- *If you do not have a documented system, you must provide a description of how you manage each of the listed issues.*

Habitats risk assessment carried out under the Habitats Regulations

The **Conservation (Natural Habitats etc) Regulations 1994,** referred to as 'the Habitats Regulations', require SEPA, as the Competent Authority, to assess landfill activities and ensure that they do not cause an adverse effect on the integrity of any European Sites. European sites have been specifically designated to protect rare and significant habitats or species. These assessments are known as Appropriate Assessments and will be carried out as part of the re-permitting process under the Landfill Regulations.

Table 6

This table is an initial investigation to determine whether your landfill site is affected by the Habitats Regulations. This is determined through its proximity to the European site – the buffer zones are explained within the SEPA Habitats Guidance note.

	Response	Document Reference
Is the landfill within the specified distance of any European Site? (in general – 2km, unless the site could attract gulls and falls within 5km of a SPA or other vulnerable site.)		
If yes, what is the distance from the landfill boundary to any European Site? If there is more than one relevant European Site, please reference each and provide separate information for each throughout this section.		
What are the designated features of the European Site?		

Table 7

If your Permitted Installation may cause a significant effect on a European site, you will need to address relevant issues in the risk assessments provided in support of this application, for groundwater and surface water, leachate, landfill gas, dust and aerosols, birds / vermin / insects, litter, and disturbance (noise & vibration).

	Response	Document Reference
Could the landfill be responsible for any likely significant effect* on the designated features of the European Site? Particularly considering the risk of the following hazards (see the SEPA Habitats Guidance note): • toxic contamination; • nutrient enrichment; • habitat loss or physical damage; • siltation; • smothering; • disturbance; or • predation.		

* A likely significant effect in this context is any effect that may be reasonably predicted as a consequence of a landfill activity that may affect the conservation objectives of the features for which the European site was designated, but excluding trivial or inconsequential effects.

Table 8

For each hazard posing a likely significant effect, complete a copy of the following table and state which hazard it refers to. Scottish Natural Heritage will be able to provide information relating to conservation objectives, favourable condition targets etc of specific European sites.

	Response	Document Reference
What are the designated features of the European Site that are of relevance to this hazard?		
Determine the favourable condition target for the relevant feature (including range of natural variation) based on conservation objectives.		
What is the contribution of the feature to the ecological structure and function of the site?		
Determine how the management of the European Site or other unauthorised activities affects the condition of the feature.		
Determine whether the hazard, when considered alone, has an adverse effect on the European site and its relevant features.		
Determine whether the hazard, when considered in combination with other activities, has an adverse effect on the European site and its relevant features.		
Can adverse affects be avoided by modifying the landfill activity, or imposing restrictions on how the activity is undertaken?		

Environmental Monitoring

All landfills will require sufficient monitoring to be carried out to check:

- *that the processes within the landfill proceed as desired;*
- *that environmental protection systems are functioning fully as intended; and*
- *that the conditions of the permit are fulfilled.*

To successfully complete this part of the application, you will need to have prepared an environmental monitoring plan for your installation. Your environmental monitoring plan must be developed from the conceptual model of the installation and will be refined as knowledge of the hydrogeological and environmental setting of the installation increases.

Table 9

Documented quality assurance programmes and procedures should be in place for your environmental monitoring, which ensure the following:	*Specify and detail:*
All environmental monitoring, sampling and analysis for your installation is carried out in accordance with recognised standards, methodologies and practices?	
Quality control of analytical operations of control and monitoring procedures is carried out by competent laboratories?	*Specify and detail:*
Quality control of analyses of representative samples of waste is carried out by competent laboratories?	*Specify and detail:*

12. Installation infrastructure

12.1 Installation security

Table 1

Describe the security arrangements on your installation in terms of: • **type of security;** • **design standards for physical security, detailing design and specification, including access;** • **operational standards for security, including operational and out-of-hours provisions; and** • **maintenance and repair schedules.**

12.2 Sub-surface structures (excluding landfill containment engineering)

Table 2

For all subsurface pipework, sumps and storage vessels confirm that one of the following options is in place:	*Specify and detail:*
a) secondary containment; b) continuous leakage detection; c) an inspection and maintenance programme, e.g. pressure tests, leak tests, material thickness checks or CCTV which are completed for all such equipment within the last 3 years and are repeated at least every 3 years.	

12.3 Installation surfacing

Table 3

A design quality assurance and inspection and maintenance programme of impervious surfaces and containment kerbs should be in place which considers:	*Specify and detail:*
• capacities • thicknesses • falls • material • permeability • strength/reinforcement • resistance to chemical attack • inspection and maintenance procedures and quality assurance of construction	

Has the above been applied to all such areas?

For each area where there is potential for the activities to pollute the ground or controlled waters, confirm that it is surfaced and that the surfacing complies with each of the requirements in the table below. Where it does not comply provide the date by which it will. Enter appropriate references for your installation and repeat the table as necessary.

Table 4

Requirement	Waste reception area	Waste storage area	Fuel store	Other (please specify)
Confirm compliance or a date for compliance which must be prior to the acceptance of any waste under the permit for provision of: • an impervious surface • spill containment kerbs • sealed construction joints • connection to a sealed drainage system				

12.4 Bunds

For each tank containing liquids whose spillage could be harmful to the environment confirm that it is bunded and that the bunding complies with each of the requirements in the table below. Where it does not comply provide the date by which it will. Enter appropriate tank references for your installation and repeat the table as necessary.

Table 5

Requirement	Fuel storage tanks	Waste oil from on site maintenance	Leachate storage tanks	Other (please specify)
Confirm compliance or a date for compliance which must be prior to the acceptance of any waste under the permit for provision of: • Be impermeable and resistant to the stored materials • Have no outlet (i.e. no drains or taps) and drain to a blind collection point • Have pipework routed within bunded areas with no penetration of contained surfaces • Be designed to catch leaks from tanks or fittings				

• Have a capacity which is the greater of 110% of the largest tank or 25% of the total tankage • Be subject to regular visual inspection and any contents pumped out or otherwise removed under • manual control after checking for contamination • Where not frequently inspected, be fitted with a high-level probe and an alarm as appropriate • Have fill points within the bund where possible or otherwise provide adequate containment • Have a routine programmed inspection of bunds, (normally visual but extending to water testing where structural integrity is in doubt)				

13 Management systems overview

13.1 Operations and maintenance standard:

Table 1

	Specify and detail
Effective operational and preventative maintenance shall be employed on all aspects of the process where any failure could impact on the environment	
Are there documented operating procedures for operations that may have an adverse impact on the environment.?	
Is there a defined procedure for identifying, reviewing and prioritising items of plant for which a preventative maintenance regime is appropriate?	
Are there documented procedures for monitoring emissions or impacts?	
Is there a preventative maintenance programme on those items of plant whose failure could lead to impact on the environment?	
Does the preventative maintenance programme include appropriate regular checks and formal inspections of 'static' items such as tanks, pipework, retaining walls, bunds and ducts?	
Do the operations and maintenance system include auditing environmental performance?	
Are the reports, results and recommendations arising from audits made available to senior management on a regular basis?	
In the last two years, has there been any notifiable incident or release for which it has been identified that lack of maintenance was a contributory cause?	
In the last two years, has there been any notifiable incident or release for which the root cause could not be identified?	

13.2 Competence and training Standard

Table 2

The operator shall ensure that all relevant management and operational staff receive adequate training with regard to their responsibilities under the Permit. Particular attention should be given to the following: • minimisation of all potential environmental effects from operations under normal or abnormal circumstances; • prevention of accidental emissions and action to be taken when accidental emissions occur; and need to report deviation from the permit. **Has a training needs assessment been carried out which:** • identifies all posts for which specific environmental awareness training is required; and • identifies the scope and level to which such training is to be given? **Are training systems in place for all relevant staff that cover the following factors:** • the regulatory requirements associated with the Permit as they affect their work activities and responsibilities; • . likely potential environmental impacts which may be caused by the plant under their control. This should cover both normal and abnormal circumstances; • reporting procedures to inform supervisors or managers of deviations from permit conditions; • procedures to be used by supervisors or managers for the reporting of deviations from permit conditions to SEPA; and • prevention of accidental emissions and action to be taken when accidental emissions occur. • The role that the part of the installation operations under their control plays in ensuring regulatory compliance.	*Document reference. Description of how you manage the issue: Specify and detail*

Are the skills and competencies necessary for key posts documented and are records of training needs and training received maintained? Are individual and organisational training needs reviewed on a regular (e.g. annual) basis?	

13.3 Emergency Planning Standard

Table 3

The operator shall maintain an accident management plan which identifies potential events or failures which might lead to an environmental impact. The plan shall identify:	*Document reference. Description of how you manage the issue: Specify and detail*
• the likelihood of, and the actions to be taken to minimise, these potential occurrences; • the environmental consequences and an action plan to deal with such occurrences; • the operator shall have a written procedure for handling, investigating, communicating and reporting incidents of actual or potential non-compliance including taking action to mitigate any impacts caused and for initiating and completing corrective action; and • in the case of abnormal emissions the operator shall investigate and undertake remedial action immediately; promptly record the events and actions taken; and ensure SEPA is made aware, as soon as practicable. Is there an accident plan completed covering the following aspects of foreseeable scenarios: likelihood, consequences, actions to prevent, action if it occurs? Has the plan identified techniques where improvement is needed? Where the need for improvement has been identified, does the plan include an implementation programme with acceptable timescales?	

Are there written procedures for handling, investigating, communicating and reporting actual or potential non compliance with operating procedures or emission limits? Are there written procedures for handling, investigating, communicating and reporting environmental complaints? Are there written procedures for investigating incidents (and near-misses) including identifying suitable corrective action and following up implementation of that action? In the last 2 years, have there been any notifiable incident or release for which it has been identified that lack of emergency planning was a contributory cause? Are there audit records of investigations into noncompliance, complaints and incidents? Does the audit cover follow up actions? Do the audit reports go to senior managers?	

13.4 Organisation standard

Table 4

The following aspects of organisation controls and installation management procedures may not be in permit conditions but are likely to have an impact on the SEPA resources required to apply the PPC regulations.

	☐ No ☐ Yes If 'Yes' answer one of the following three questions *Document reference. Description of how you manage the issue:*
Do you operate an externally audited environmental management system? Is your Environmental Management System EMAS registered? Is your Environmental Management System certified to ISO 14001? Is your Environmental Management System subject to external audit through a third party audit programme with a published methodology (this excludes in house company audit programmes)?	

If you do not operate an externally audited environmental management system then answer the following questions:

Have you adopted an environmental policy and programme which:

- includes a commitment to continual improvement and prevention of pollution?
- includes a commitment to comply with relevant legislation, and with other requirements to which the organisation subscribes?
- identifies, sets, monitors and reviews environmental objectives, independently of the permit?

Are there procedures that incorporate environmental issues into the following areas (as supported by demonstrable evidence e.g. written procedures):

- the control of process change on the installation?
- purchasing policy?

Are there audits, at least annually, to check that all activities are being carried out in compliance with the above requirements?

Are there reports annually on environmental performance, objectives and targets, and future planned improvements?

Does your company produce a public environmental statement?

Document reference. Description of how you manage the issue:

Table 5

Managing documentation and records For each of the following elements of your management system, give the required information	**Where kept**	**How identified**	**Who responsible**
Policies			
Responsibilities			
Targets			
Maintenance records			
Procedures			
Monitoring records			
Results of audits			
Results of reviews			
Complaints and incident records			
Training records			

13.5 Environmental statements

Table 6

Has the development of the installation (or any subsequent change or extension of the development) required an environmental statement under Council Directive 85/337/EEC on the assessment of the effects of certain public and private projects on the environment?	☐ No ☐ Yes If 'Yes', please supply a copy of the environmental statement submitted and details of any decision made. *Document reference:*

13.6 Statutory consultees

We will use the information in this section to identify who we must consult about your proposals.

Table 7

1	In which local authority area is the installation located?	*If premises are on a boundary please give names of all relevant authorities.*
2	In which Health Board area is the installation located?	*If premises are on a boundary please give names of all relevant Health Boards:*
3	Could the installation involve the release of any substance into a sewer vested in a sewerage undertaker?	☐ No ☐ Yes
4	Are there any Sites of Special Scientific Interest (SSSIs) within 2 kilometres of the installation?	☐ No ☐ Yes *If 'Yes' please give names of the sites*
5	Are there any other SSSIs which may be affected by emissions from the installation?	☐ No ☐ Yes If 'Yes' please give names of the sites
6	Are there any European Conservation sites, as defined by regulation 10 of the Conservation (Natural Habitats etc.) Regulations 1994, which may be effected by emissions from the installation?	☐ No ☐ Yes If 'Yes' please give names of the sites
7	Could the installation involve the release of any substance into a harbour managed by a harbour authority?	☐ No ☐ Yes If 'Yes' please give names of the Harbour Authority:

8 Is the installation on a site for which:

- a nuclear site licence is required under section 1 of the Nuclear Installations Act 1965? ☐ No ☐ Yes
- A major accident prevention policy document is required under Regulation 5 of the Control of Major Accident Hazards Regulations 1999. ☐ No ☐ Yes

13.7 Planning status

Table 8

Which of the following applies to the specified waste management activities identified above?

(We cannot issue a permit unless one of the following applies. We will need to see a copy of the relevant documents).

☐ You have planning permission

Document reference number:

☐ You have a certificate of lawful existing use or development.

Document reference number:

☐ The Town and Country Planning (General Permitted Development) (Scotland) Order 1992 or other relevant orders applies.

Please give details:

☐ Planning permission is not required (Please say why and enclose written confirmation from the planning authority.

Reference Number:

13.8 Fit and proper person

Table 9

Has the operator, or any other 'relevant person', been convicted of any 'relevant offence'?

A 'relevant person' includes each partner, director, manager, company secretary or any similar officer or can be an employee.

We need to make sure that whoever holds the permit is a 'fit and proper person' in relation to any specified waste management activities. This includes consideration of relevant offences, technical competence and financial provision. (Please read 'Waste Management Paper No. 4' before completing this section.)

☐ No ☐ Yes

If 'Yes' please give full information:

Reference number for this information:

Details needed:

- *Full name of company or individual convicted.*
- *If an individual has been convicted please state their position at time of offence.*
- *Name of court.*
- *Date of conviction.*
- *Offence and penalty imposed.*
- *Date of any outstanding appeal lodged against conviction.*
- *Any additional information which the operator would like us to take into account in determining whether they are a 'fit and proper person'. For example, why the offence happened, and what has been done to prevent a similar event occurring.*

13.9 Technical competence

Table 10

Are the specified waste management activities covered by the WAMITAB (Waste Management Industry Training Advisory Board) award scheme?

☐ No ☐ Yes

WAMITAB installations

Who will provide the technically competent management of the specified waste management activities?

Please give details for each person and provide a copy of the WAMITAB certificate.

Please enter responsible person(s) below:

Full Name:

Position:

Level of WAMITAB certificate:

Date:

Reference for copy of certificate:

Please enter responsible person(s) below:

Full Name:

Position:

Level of WAMITAB certificate:

Date:

Reference for copy of certificate:

Please enter responsible person(s) below:

Full Name:

Position:

Level of WAMITAB certificate:

Date:

Reference for copy of certificate:

Please enter responsible person(s) below:

Full Name:

Position:

Level of WAMITAB certificate:

Date:

Reference for copy of certificate:

Table 11: Management of other installations

Are any of these 'Responsible people' already providing the technically competent management at other IPPC installations or at sites licensed under Part II of the Environmental Protection Act 1990?

☐ No ☐ Yes

Please use a separate sheet to give details of these people. For each person we need to know the site/installation name and address and the licence/permit reference number.

If 'Yes', document reference:

13.10 Financial provision

Table 12

If known, how does the operator intend to make financial provision for the specified waste management activities?

☐ No ☐ Yes

Renewable bonds:

Bonds:

Bank guarantee;

Parent company guarantee:

Please include one copy of the parent company's audited trading accounts for the last three years (or for the period of trading if less than three years). These should be no more than 18 months out of date

Escrow account;

Trust fund;

Insurance captive;

Lump sum;

Other; (Specify)

13.11 Expenditure plan

Table 13

Please provide a plan of the estimated expenditure for each phase of the specified waste management activities.

The plan should include the likely costs of:

- *Development*
- *Operation*
- *Monitoring*
- *Restoration*
- *Aftercare*
- *Remedial action in the event of the failure of pollution control systems*
- *Demonstration of compliance with regulation 13 of the Landifll (Scotland) Regulations 2003*

We recognise that this plan may need to be revised before the issue of the final permit.

Reference number for expenditure plan:

14 GLOSSARY OF TERMS

Term	Meaning
Biodegradable Waste*	Any waste that is capable of undergoing anaerobic or aerobic decomposition, such as food, garden waste, paper and cardboard.
Completion	The point when aftercare maintenance and monitoring is completed to such a level that the surrender test is met.
Definite closure	The point at which the Agency inspects the site and approves closure (normally when the landfill has stopped taking waste for disposal).
European Waste Catalogue	A list of wastes pursuant to Article 1(a) of Directive 75/442/EEC on waste and Article 1(4) of Directive 91/689/EEC on hazardous waste.
Existing installation	Landfill sites that have already been granted a Waste Management Licence or PPC Permit or otherwise operational prior to the transposition of the LFD into UK law on 16 July 2001 and required a Site Conditioning Plan to be submitted to the Regulators by 16 July 2002.
FAPP	In accordance with Regulation 4 of the Pollution Prevention and Control Regulations 2000, a person shall be treated as not being a fit and proper person if it appears to the regulator that: (a) he or another relevant person has been convicted of a relevant offence; (b) he has not made, or will not before commencement of the specified waste management activity make 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; (c) he and all staff engaged in carrying out that activity will not be provided with adequate professional technical development and training; or (d) the management of that activity will not be in the hands of a technically competent person.
Hazardous waste*	Any waste as defined in Article 1(4) of Directive 91/689/EEC on hazardous waste.
Inert waste*	Any waste which does not undergo significant physical, chemical or biological transformations. Inert waste will not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way which is likely to give rise to environmental pollution or harm to human health. The total leachability and pollutant content of the waste and the ecotoxicity of leachate must be insignificant, and in particular not endanger the quality of surface water and/or groundwater. (Regulation 2 of the Landfill (Scotland) Regulations 2003).
Installation	Within the landfill sector, an installation is defined as the landfill and any associated process directly involved in the physical process of landfilling the waste.
Landfill Gas*	Any gas generated from the landfilled waste. (Landfill (Scotland) Regulations 2003).
Landfill*	A waste disposal site for the deposit of waste onto or into land, including: • internal waste disposal sites; and • a permanent site (i.e. more than 1 year) that is used for temporary storage of waste; but excluding: • facilities where waste is unloaded in order to permit its preparation for further transport for recovery, treatment or disposal elsewhere; and • storage of waste prior to recovery or treatment for a period less than three years as a general rule; or • storage of waste for a period less than one year prior to disposal.

Landfill Permit**	The permit which is required by the Pollution Prevention and Control Regulations 2000 for the carrying out of the disposal of waste in a landfill. (Regulation 2 of the Landfill (Scotland) Regulations 2003).
Leachate*	Any liquid percolating through the deposited waste and emitted from or contained within a landfill. (Landfill (Scotland) Regulations 2003).
New installation	Landfill sites which have not been operational before 16th July 2001 or have not been granted a Waste Management Licence or a PPC Permit before the transposition of the Landfill Directive into UK law on 16 July 2001.
Non-hazardous waste*	Any waste not covered by the 'hazardous waste' definition. (Regulation 2 of the Landfill (Scotland) Regulations 2003).
Non-PPC Landfill*	The disposal of waste in any landfill to which the Landfill (Scotland) Regulations 2003 apply other than a landfill receiving more than 10 tonnes of waste in any day or with a total capacity of more than 25,000 tonnes, excluding disposal in landfills taking only inert waste. (Regulation 8 of the Landfill (Scotland) Regulations 2003).
Operational phase	Includes the installation of the engineering containment system, the active phase (i.e. when the site is accepting waste), and the installation of the capping system, up until the point of definite closure.
Operator*	The person who has control over the operation of the installation. (Regulation 2(1) and (2) of the Pollution Prevention and Control Regulation 2000).
Permit	A permit granted by the Regulator allowing the Operation of an Installation subject to certain conditions which must be adhered to until a time when the Permit is surrendered see below).
Post-closure phase	The point after definite closure, where the landfill has stopped accepting waste for disposal.
PPC Landfill*	The disposal of waste in a landfill receiving more than 10 tonnes of waste in any day or with a total capacity of more 25,000 tonnes, excluding disposal in landfills taking only inert waste. (Part A(1) of Section 5.2 in Part 1 of Schedule 1 to the Pollution Prevention and Control Regulations 2000).
Regulator	Generic term used to include the Scottish Environment Protection Agency.
Site conditioning plan	A report required by the Regulator for all existing landfill sites to detail how they intend to comply with the requirements of the Landfill Directive under the PPC Regulations.
Surrender	The point at which the Permit holder has completed aftercare maintenance to such a level that it is accepted by the Regulator that the landfill is no longer a risk to the environment.
Treatment*	Physical, thermal, chemical or biological processes (including sorting) that change the characteristics of waste in order to reduce its volume or hazardous nature, facilitate its handling or enhance recovery. (Landfill (Scotland) Regulations 2003).
Waste*	Controlled waste within the meaning of section 75(4) of the Environmental Protection Act 1990. (Landfill (Scotland) Regulations 2003).

**** as defined by Landfill Regulations***