KEY: ALL ENTRIES IN BLACK ARE THE ORIGINAL ENTRIES AS AT 19/10/04
ALL ENTRIES IN RED ARE AMENDMENTS AS AT 16/03/05

Use this part of the form if you are applying for a new permit

Preliminary information

0.0.1 **Name of the installation**

The name that you gave in part A

TA' ZWEJRA NON-HAZARDOUS WASTE FACILITY

0.0.2 **Type of site**

◯ Hazardous landfill

Is your site
- ○ a new hazardous landfill?
- ○ an existing hazardous landfill?

● Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non-reactive wastes)

Is your site
- ● a new non-hazardous landfill?
- ○ an existing non-hazardous landfill?

◯ Inert landfill

Is your site
- ○ a new inert landfill?
- ○ an existing inert landfill?

See glossary for definitions of **New (installation)** *and* **Existing (installation)**

Checklist for Part B of your application

Check that you have included the items in the following table. See **Number of copies** in Part F of this form to work out how many copies of each item you must submit.

- ■ Parts A and F, and either of Parts B or C, of the application form
- ☐ The appropriate fee Application form Part F
- ■ Conceptual model Section 1
- ■ Your site report Section 1
- ■ Scale plans and drawings specified in the questions as being required Section 1
- ■ The environmental risk assessments Section 1
- ■ A copy of any previous information relating to the Habitats Regulations provided in support of a planning application or any other purpose. A completed Habitats Appendix 11 where relevant (further details can be obtained from the Habitats Directive Process Handbook). Section 4
- ☐ Diagram showing your management structure Section 4

Applies if **an existing hazardous landfill?** on page 1 is ticked Applies if **an existing non-hazardous landfill?** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked

- ☐ A copy of the conditioning plan for your installation, as required by Schedule 4, Paragraph 1(9) of the Landfill Regulations

Please list any o
ther items where you are providing copies of your own information below

Introduction

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

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

Before you complete the form

- You must determine what the boundary of the installation is.
- You should have developed a conceptual model of the site in relation to its environment, on the basis of a desk study, site investigation and report.
- The conceptual model should have been developed through risk assessments (e.g. hydrogeological, stability, landfill gas) into a detailed design for the construction and operation of the installation.
- This design should have been reviewed until you are confident that the design and operation of the installation will satisfy the emission standards you have identified for the site against the relevant benchmarks.
- You should then complete the form in draft, and use this to discuss your conceptual model, risk assessments, detailed design and emission benchmarks in pre-application discussions with the Authority.

You will be asked to provide specified drawings and risk assessments with the completed form.

Applies if an existing hazardous landfill? on page 1 is ticked Applies if an existing non-hazardous landfill? on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked

If you have already submitted some or all of these drawings and assessments to the Authority, then provided that they meet the specifications and do not require revision for this application, you do not have to create them again but may be asked to provide further copies. You are required to answer the relevant questions in the form, though, and to provide the relevant cross-references to the drawings and assessments you have already submitted.

Your completed application will consist of

- the completed application form
- the plans and drawings that are specified in the form, and
- the conceptual model, site report, hydrogeology, stability and landfill gas risk assessments on which the design, construction, operation and monitoring of the installation are based.

No other technical or procedural documentation should be required with the application, since the relevant information the Authority needs for routine and detailed compliance will have been distilled from the application form and referenced by the Authority in the standard conditions and standard reports of the permit.

If your application results in the issue of a permit, then the permit conditions will incorporate one section of the completed Part B application into the permit. This is the Regulatory Specification (Section 2), which defines the standards within which the installation will be designed, operated and maintained.

Your Regulatory Specification will be enforceable under the permit, and will be supported by:

- the risk assessments submitted with the application, and
- the detailed design of the control and monitoring systems, which may not be submitted with the application, but which, for key engineering elements, will be submitted for each new cell before it is constructed and the construction of which will be subject to validation and Authority approval prior to operation of each new cell, and
- the documented management systems, which may not be submitted to the Authority with the application, but which must be implemented and maintained to keep the installation within the Regulatory Specification, and which may be inspected at any time by the Authority during compliance assessment.

The permit conditions will allow for the phased development of your installation provided that it continues to meet the regulatory specification, and will require that

- detailed design and Construction Quality Assurance (CQA) documents meeting the relevant parts of the regulatory specification are submitted for defined parts of the engineering for each new cell prior to construction for approval by the Authority; and
- the Construction Quality Assurance validation report for each new cell is approved by the Authority prior to it becoming operational.

Provided it continues to meet the regulatory specification your detailed operational documentation may be changed by informing the Authority of the change and the date of its implementation unless such change would otherwise amount to a ‘substantial change’ as defined by the Integrated Pollution Prevention and Control Regulations 2002 “the IPPC Regulations” (LN234 of 2002, and LN230 of 2004 as amended).

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

1.1 Environmental setting and installation design

You must provide a conceptual model for your installation. The conceptual model should provide an understanding of the installation in its environmental setting and consideration of the design and operation of the site at the time of the application. The conceptual model should address the source terms of the risk (e.g. waste), all pathways and receptors and must meet the specification set out in this section. The conceptual model must be based on the drawings listed below some of which will be "as built" and some will be proposals. One drawing can provide the information for more than one of the following, providing the drawing is clear. Identification numbers must be included for each monitoring point.
These drawings must be to recognised scales sufficient to show the details specified below.

The drawing label must include

- *title of drawing*
- *installation name*
- *name and address of the operator*
- *date the drawing was made*
- *drawing identification number*
- *scale of the drawing.*

The installation

Provide scale drawings showing the following

1.1.1	**The defined boundaries of the installation in relation to local environmental receptors, emission sources and monitoring points**	Identification number of scale drawing showing these features ZW002/04

Environmental setting

1.1.2	**The installation showing the phasing, the location, size and shape of hydraulically independent cells that are to be constructed and summarising the areas where waste has already been deposited and areas yet to be filled with waste**	Identification number of scale drawing showing these features ZW002/04
1.1.3	**The distances from the installation boundary to residential and recreational areas, waterways, water bodies and other agricultural or urban sites (up to 500m)**	Identification number of scale drawing showing these features ZW003/04

1.1.4	**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 ZW003/04 ZW005/04
1.1.5	**The local topography (given for at least 500m from the installation boundary)**	Identification number of scale drawing showing these features ZW005/04(b)
1.1.6	**Proposed pre-settlement contours at appropriate intervals for the whole installation**	Identification number of scale drawing showing these features ZW002/04
1.1.7	**Predicted post-settlement contours of the whole installation and the surrounding land (given for at least 500m from the installation boundary); the proposed after-use of the installation and proposed planting**	Identification number of scale drawing showing these features ZW004/04(A)
1.1.8	**The aquifer classification, any source protection zones, licensed abstractions, private water supplies and the vulnerability of the groundwater at the installation**	Identification number of scale drawing showing these features ZW005/04
1.1.9	**The local and regional groundwater flow directions with groundwater contours**	Identification number of scale drawing showing these features ZW005/04(A)
1.1.10	**A scaled cross section (for each groundwater body) 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 ZW005/04 C
1.1.11	**The areas of natural or cultural heritage and nature protection zones (consider up to 5km)**	Applies if a new hazardous landfill? on page 1 is ticked Applies if a new non- hazardous landfill? on page 1 is ticked Applies if a new inert landfill? on page 1 is ticked Identification number of scale drawing showing these features ADDENDUM SECTION 6 PAGE 7
1.1.12	**All the potential receptors of emissions to all environmental media (groundwater, surface water, land and air)**	Identification number of scale drawing showing these features ZW13/04
1.1.13	**All the potential pathways to the identified installation specific receptors**	Identification number of scale drawing showing these features

1.1.14 **A wind rose for the site**

Identification number of scale drawing showing these features

ZW006/04

Operational details

1.1.15 **The elements of site security for the installation**

Identification number of scale drawing showing these features

N/A

Leachate management and monitoring

1.1.16 **The location of all leachate monitoring points, wells, sumps and leak detection layers (if present), piping and other fixed plant and equipment for leachate collection, extraction/recirculation, treatment**

Identification number of scale drawing showing these features

ZW008/04 ZW009/04

1.1.17 **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

ZW011/04

1.1.18 **Process flow block diagram showing how the landfill connects to the leachate treatment plant.**

Applies if Hazardous landfill on page 1 is ticked Applies if Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non- reactive wastes) on page 1 is ticked

Identification number of scale drawing showing these features*Ensure that all release points are labelled, e.g., those to surface water W1 etc., those to sewer S1 etc.*

ZW011/04

Landfill gas management and monitoring

1.1.19 **Position of in-waste gas wells and monitoring points**

Identification number of scale drawing showing these features

ZW009/04

Applies if Hazardous landfill on page 1 is ticked Applies if Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non- reactive wastes) on page 1 is ticked

1.1.20 **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

ZW009/04

1.1.21 **Other fixed plant and equipment for landfill gas collection, extraction, treatment, disposal and/or use (e.g. knock-out pots)**

Identification number of scale drawing showing these features

ZW009/04

1.1.22 **Landfill gas flare(s)**

Identification number of scale drawing showing these features

ZW009/04

1.1.23 **Landfill gas energy utilisation plant and exhaust stack(s)**

Identification number of scale drawing showing these features

ZW009/04

1.1.24	**Perimeter landfill gas monitoring boreholes**	Identification number of scale drawing showing these features ZW008/04
1.1.25	**Perimeter landfill gas monitoring points for aerial emissions**	Identification number of scale drawing showing these features ZW008/04

Surface water management and monitoring

1.1.26	**Layout of surface water collection, drainage and discharge systems**	Identification number of scale drawing showing these features ZW008/04
1.1.27	**All surface water monitoring point locations**	Identification number of scale drawing showing these features ZW008/04
1.1.28	**Location of any discharge points to surface water**	Identification number of scale drawing showing these features N/A

Groundwater management and monitoring

1.1.29	**Location of all groundwater monitoring points**	Identification number of scale drawing showing these features ZW008/04
1.1.30	**Vertical cross-section(s) showing constructional details and depth(s) of each groundwater monitoring point**	Identification number of scale drawing showing these features

Nuisance and health monitoring

1.1.31	**Location of all monitoring points**	Identification number of scale drawing showing these features ZW008/04

Installation engineering

1.1.32	**As built drawing for all constructed containment engineering (including protection and leachate drainage system)**	Identification number of scale drawing showing these features ZW011/04
1.1.33	**Proposals for all subsequent containment engineering (including geological barrier, artificial sealing liner, protection and leachate drainage system)**	Identification number of scale drawing showing these features ZW011/04

Site reports and landfill installations

A site report for those parts of a landfill installation where waste will not be permanently deposited (waste reception areas, leachate treatment areas, etc.) will be required as for any other IPPC installation and will be used to provide a benchmark against which future land quality can be measured. As with other 'specified waste management activities' the surrender assessment will take account of potential pollution arising from previously licensed activities.

Site reports covering areas of permanently deposited waste will be aimed at establishing the background quality of surface water, gas and groundwater at the site of the installation. This aims to establish a benchmark against which to assess these specific impacts during operation, post closure and at the point of permit surrender, as required by the Waste Management (Landfill) Regulations 2002 (LN168/2002) referred to as Landfill Regulations 2002. Much of the information that might form part of site reports will also be required in support of risk assessments and conceptual models.
Where you intend to rely on information in the risk assessments and conceptual models to provide your site report please provide the document reference and drawing references below.

1.1.34 **Do you intend to rely on information in the risk assessments and conceptual model to provide your site report for the parts of the installation where waste will be permanently deposited?**

◯ No — Provide document reference for the site report

● Yes — Please list the relevant section/page numbers in your risk assessments and conceptual model

ZWR02/04 HGA

1.1.35 **Do you intend to rely on information in the risk assessments and conceptual model to provide your site report for the parts of the installation where waste will not be permanently deposited?**

◯ No — Provide document reference for the site report

● Yes — Please list the relevant section/page numbers in your risk assessments and conceptual model

ZWR02/04 HGA

1.2 Risk assessments

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 operation of your installation. The regulatory specification that you provide in Section 2 of this form must be justified with reference to the risk assessments you describe in this section.

In addition to answering the questions in this section, you must provide the following detailed risk assessments with your application. You should give the reference for any previous risk assessments that have been submitted to the Authority

- *hydrogeological risk assessment*
- *stability risk assessment*
- *landfill gas risk assessment.*

Hydrogeological risk assessment

The hydrogeological risk assessment must demonstrate compliance with the Groundwater Regulations (LN203 of 2002) over the lifetime of the installation and establish the technical measures necessary to comply with the Landfill Regulations 2002 and the Groundwater Regulations. The installation must be designed and operated such that substances in List I are prevented from entering groundwater and the discharge of List II substances is limited so as to avoid groundwater pollution. The Groundwater Regulations define List I and List II substances.

1.2.1 **Provide the following information**

Applies if a new hazardous landfill? on page 1 is ticked Applies if a new non- hazardous landfill? on page 1 is ticked Applies if a new inert landfill? on page 1 is ticked

Do the Groundwater Regulations (LN203 of 2002) apply?

○ No

Provide a summary of the reasons why not and the reference to the relevant section/ page of the detailed justification in your hydrogeological risk assessment

● Yes

Section/page number of hydrogeological risk assessment and any comments

SECTION 6.0 HGA PAGE 8

Do arrangements need to be made to collect contaminated water and leachate?

○ The installation poses no potential hazard to the environment in view of its location and waste types accepted

Provide a summary of the reasons and the reference to the relevant section/page of the detailed justification in your hydrogeological risk assessment

● Arrangements needed

Section/page number of hydrogeological risk assessment and any comments

SECTION 22.0 HGA

Does the risk assessment determine the technical measures necessary for the geological barrier, engineered containment, and leachate management systems?

○ No

Provide a summary of the reasons why not and the reference to the relevant section/ page of the detailed justification in your hydrogeological risk assessment

● Yes

Section/page number of hydrogeological risk assessment and any comments

SECTION 22.0 HGA

Have groundwater control and trigger levels been derived?

○ No

Provide a summary of the reasons why not and the reference to the relevant section/ page of the detailed justification in your hydrogeological risk assessment

● Yes

Section/page number of hydrogeological risk assessment and any comments

ADDENDUM SECTION 8 PAGE 12

Has the monitoring programme for groundwater, surface water and leachate been designed using the hydrogeological risk assessment?

● No

Provide a summary of the reasons why not and the reference to the relevant section/ page of the detailed justification in your hydrogeological risk assessment

SECTION 22.0 HGA

● Yes

Section/page number of hydrogeological risk assessment and any comments

1.2.2 **Provide the following information** Applies if **an existing hazardous landfill?** on page 1 is ticked Applies if **an existing non-hazardous landfill?** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked

Repeat this section for each closed, pre-operational and operational cell/phase of the installation

<-- repeatable group starts here>

Name of cell/phase

CELLS 1, 2 & 3

Type

○ Pre-operational
● Operational
○ Closed

Do the Groundwater Regulations 1998 apply?

○ No

Provide a summary of the reasons why not and the reference to the relevant section/ page of the detailed justification in your hydrogeological risk assessment

● Yes

Section/page number of hydrogeological risk assessment and any comments

Do arrangements need to be made to collect contaminated water and leachate?

◯ The installation poses no potential hazard to the environment in view of its location and

waste types accepted

Provide a summary of the reasons and the reference to the relevant section/page of the detailed justification in your hydrogeological risk assessment

Arrangements needed

Section/page number of hydrogeological risk assessment and any comments

SECTION 22.0 HGA PAGE 31

Does the risk assessment determine the technical measures necessary for the:
geological barrier
engineered containment
leachate management systems

○ No

Provide a summary of the reasons why not and the reference to the relevant section/page of the detailed justification in your hydrogeological risk assessment

● Yes

Section/page number of hydrogeological risk assessment and any comments

SECTION 22.0 HGA PAGE 31

Have groundwater control and trigger levels been derived?

○ No

Provide a summary of the reasons why not and the reference to the relevant section/page of the detailed justification in your hydrogeological risk assessment

● Yes

Section/page number of hydrogeological risk assessment and any comments

Has the monitoring programme for groundwater, surface water and leachate been designed using the hydrogeological risk assessment?

○ No

Provide a summary of the reasons why not and the reference to the relevant section/page of the detailed justification in your hydrogeological risk assessment

● Yes

Section/page number of hydrogeological risk assessment and any comments

repeatable group ends here ->

1.2.3 **Please provide your hydrogeological risk assessment for the installation which must address the following key issues:**

Version and full reference for the hydrogeological risk assessment report

ZWR02/04 HGA

Location, including grid reference	Section/page number of hydrogeological risk assessment and any comments SECTION 5.0 HGA PAGE 7
Installation maps and plans (as specified in section 1 above)	Section/page number of hydrogeological risk assessment and any comments ATTACHED DRAWINGS
Historical activities	Section/page number of hydrogeological risk assessment and any comments SECTION 5.0 HGA
Operational phasing	Section/page number of hydrogeological risk assessment and any comments SECTION 2.0 HGA
Landfill classification	Section/page number of hydrogeological risk assessment and any comments SECTION 2.0 HGA
Nature of wastes to be accepted	Section/page number of hydrogeological risk assessment and any comments NON-INERT NON-HAZARDOUS WASTES
Characterisation of leachate	Section/page number of hydrogeological risk assessment and any comments SECTION 15.0 HGA

1.2.4 **Please provide a documented model in support of the conceptual model detailed in Environmental setting and installation design which contains:**

Geology (vertical/lateral variability, attenuation characteristics). e.g. maps, cross-sections	Section/page number of hydrogeological risk assessment and any comments SECTION 10.0 HGA
Hydrology, topography, climate	Section/page number of hydrogeological risk assessment and any comments SECTION 8.0 HGA
Hydrogeological conditions (groundwater levels, flow and quality regime, vulnerability, source protection zones)	Section/page number of hydrogeological risk assessment and any comments SECTION 12.0 HGA
Long term hydrogeological changes	Section/page number of hydrogeological risk assessment and any comments N/A
Source term characteristics (leachate head levels, chemical characteristics, short and long term changes, presence of polluting substances)	Section/page number of hydrogeological risk assessment and any comments SECTION 15.0 HGA
Water balance for the installation	Section/page number of hydrogeological risk assessment and any comments APPENDIX 1 HGA
Pathways to receptors	Section/page number of hydrogeological risk assessment and any comments SECTION 7.0 HGA

Receptors (groundwater below/adjacent to installation, abstractions, surface water)	Section/page number of hydrogeological risk assessment and any comments SECTION 7 0 HGA PAGE 11

1.2.5 **Engineering and active management (controls – rationale for proposed):**

Capping	Section/page number of hydrogeological risk assessment and any comments Document: 'Project Design for the closure of Ta' Zwejra Landfill'
Lining design	Section/page number of hydrogeological risk assessment and any comments SECTION 22.0 HGA
Leachate drainage systems	Section/page number of hydrogeological risk assessment and any comments SECTION 22 0 HGA Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non- reactive wastes)** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked Applies if **Arrangements needed** on page 9 is ticked
Leachate head control	Section/page number of hydrogeological risk assessment and any comments SECTION 22.0 HGA
Groundwater management systems (if appropriate)	Section/page number of hydrogeological risk assessment and any comments SECTION 22.0 HGA
Leak detection systems (if appropriate)	Section/page number of hydrogeological risk assessment and any comments SECTION 22 0 HGA

1.2.6 **Risk assessment**

Justification for methodology used	Section/page number of hydrogeological risk assessment and any comments SECTION
Likely/plausible worst case impacts on existing and potential receptors	Section/page number of hydrogeological risk assessment and any comments SECTION 20.0 HGA PAGE 27
Quantified impact of long term failure scenarios of engineering and active management controls	Section/page number of hydrogeological risk assessment and any comments SECTION 20.0 HGA PAGE 27
Consideration of assessment limitations, safety factors and uncertainties	Section/page number of hydrogeological risk assessment and any comments SECTION 20.0 HGA PAGE 27
Sensitivity analysis	Section/page number of hydrogeological risk assessment and any comments N/A

1.2.7 **Modelling (numerical/analytical)** Applies if **Arrangements needed** on page 9 is ticked

Justification for using particular computer model, particularly suitability for installation's hydrogeological conditions	Section/page number of hydrogeological risk assessment and any comments SECTION 13.0 HGA CTION 20.0 HGA

Verification for third party code/models including relevant equations.	Section/page number of hydrogeological risk assessment and any comments HRA 4C/585/001 Filename(s) and any comments
Supply electronic copies of all models including instructions	REF HRA 4C/585/001
Identification of receptors, compliance criteria and calibration	Section/page number of hydrogeological risk assessment and any comments HRA 20.0 Hydrological Risk Assessment PAGE 27
Schematic diagrams showing relationship of conceptual model to computer model inputs	Section/page number of hydrogeological risk assessment and any comments N/A
Multiple model runs to simulate different phases (time) and justified range of input parameter values	Section/page number of hydrogeological risk assessment and any comments HRA ANNEX 1 PAGE 36
Justification for field measurements and model defaults	Section/page number of hydrogeological risk assessment and any comments HRA SECTION 21.0 PAGE 31
Interpretation of model output	Section/page number of hydrogeological risk assessment and any comments HRA SECTION 23.0 PAGE 34
Reporting of maximum acceptable leachate head and contaminant concentrations in leachate	Applies if **Arrangements needed** on page 9 is ticked Section/page number of hydrogeological risk assessment and any comments HRA SECTION 22.0 PAGE 31

1.2.8 **Requisite surveillance**

Risk-based monitoring scheme – location, frequency and method of sampling for groundwater, leachate and surface water	Section/page number of hydrogeological risk assessment and any comments SECTION 22.0 HGA

1.2.9 **Groundwater control and trigger levels**

Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non- reactive wastes)** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked

Groundwater control and trigger levels for selected polluting substances	Section/page number of hydrogeological risk assessment and any comments SECTION 22.0 HGA
Methods used to derive control and trigger levels	Section/page number of hydrogeological risk assessment and any comments SECTION 22.0 HGA
Locations for compliance monitoring	Section/page number of hydrogeological risk assessment and any comments SECTION 22.0 HGA
Justification for choice of environmental assessment levels for selected polluting substances	Section/page number of hydrogeological risk assessment and any comments SECTION 20.0 HGA

1.2.10 **Surrender evaluation**

Estimate of time until application to surrender permit	Section/page number of hydrogeological risk assessment and any comments
	MID-2006

Stability risk assessment

In constructing a landfill liner the operator should ensure that:

- *the placement of the waste should ensure its stability and the stability of associated structures and in particular must avoid slippages; and*
- *when an artificial barrier is used, the geological substratum must be sufficiently stable, taking into account the morphology of the installation to prevent settlement that may cause damage to the barrier.*

Therefore in establishing the various design standards as set out within **Section 2.3** *on page 39 they must be defined on the basis of the risk of a failure of the structure or liner.*

To aid in the assessment of the stability of the system, it is proposed that you consider the 5 different components as identified in Figure 1 below.

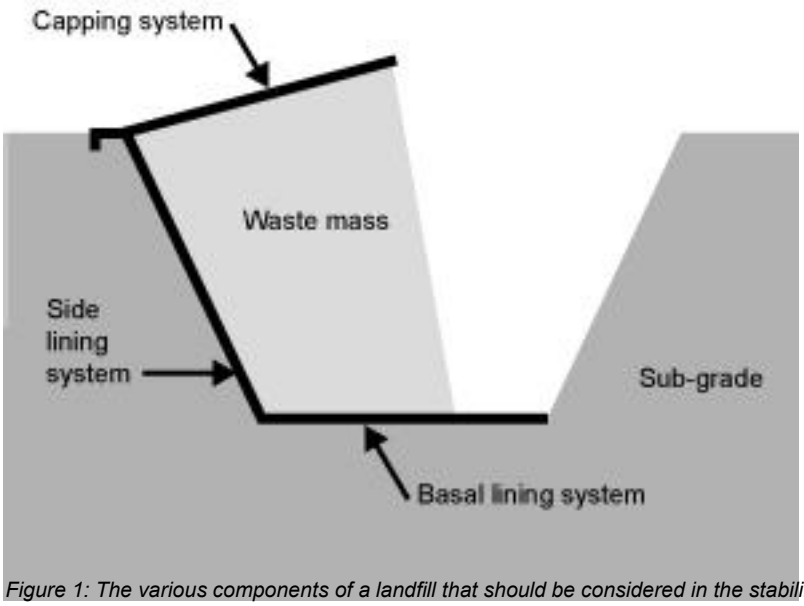

Figure 1: The various components of a landfill that should be considered in the stability risk assessment

Stability and integrity

As a landfill is a complex structure, damage can occur as a result of large and small movement/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 or is controlled. 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.*

Factors of safety (FoS)

A factor of safety is the numerical expression of the degree of confidence that exists, for a given set of conditions, against a particular failure mechanism occurring. Using factors of safety allows engineers to overcome a range of uncertainties in input parameters and analysis methods. Such uncertainties may arise from the inevitable simplification and approximation required in analysis methods, the controlling material parameters, and the possibility of missing a potential failure mechanism and changes that might occur locally and with time. It is commonly expressed as the ratio of the load or action which would cause failure against the actual load or actions likely to be applied during service. There is no fixed value for an appropriate factor of safety within landfill engineering as this will be dependent on the confidence in input parameters and consequence of failure.

Factors to consider

For each component of the installation that needs to be assessed the following list of questions should be considered. . It is strongly advised that the completion of these questions 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 not all relevant issues will require a detailed calculation. As with the choice of factors of safety, the level of analysis required should be chosen on the basis of sound engineering judgement.

Assessment of the subgrade

1.2.11 **Assessment of the base of the landfill**

Does the base of the landfill have excessively compressible sub-grade?

● No

Provide the justification and reference to the relevant section/page in your stability report

SECTION 4 0 SRA PAGE 7

○ Yes

Section/page number of stability report which deals with this issue

Are cavities likely to develop within the sub-grade?

○ No

Provide the justification and reference to the relevant section/page in your stability report

● Yes

Section/page number of stability report which deals with this issue

SECTION 4.0 SRA

Is basal heave at the base of the landfill likely to affect the integrity of the sub-grade?

● No

Provide the justification and reference to the relevant section/page in your stability report

SECTION 4.0 SRA PAGE 7

○ Yes

Relevant design parameters

Minimum factor of safety

Section/page number of stability report which deals with this issue

1.2.12 **Which of the following is to be used as a subgrade?**

Select all that apply

☐ Waste slope

1.2.13 **Assessment of the waste slope as a sub-grade**

Is the settlement within the slope (both in confined and unconfined conditions) likely to affect the integrity or stability of the landfill liner?

○ No

Provide the justification and reference to the relevant section/page in your stability report

○ Yes

Relevant design parameters

N/A

Minimum factor of safety

N/A

Section/page number of stability report which deals with this issue

N/A

☐ Hard rock slope

1.2.14 **Assessment of hard rock slopes as a sub-grade**

Is the presence of discontinuities/joints/faults within the slope, likely to make it unstable (both in confined and unconfined conditions)?

○ No

Provide the justification and reference to the relevant section/page in your stability report

○ Yes

Relevant design parameters

N/A

Minimum factor of safety

N/A

Section/page number of stability report which deals with this issue

N/A

Is the presence of groundwater within the slope likely to make it unstable (both in

confined and unconfined conditions)?

○ No

Provide the justification and reference to the relevant section/page in your stability report

N/A

○ Yes

Relevant design parameters

N/A

Minimum factor of safety

N/A

Section/page number of stability report which deals with this issue

N/A

■ Cohesive soils slope

1.2.15 **Assessment of cohesive soil slopes as a sub-grade**

Is the cut of the slope likely to become unstable in unconfined conditions?

○ No

Provide the justification and reference to the relevant section/page in your stability report

● Yes

Relevant design parameters

Minimum factor of safety

1.3

Section/page number of stability report which deals with this issue

SECTION 4.1 SRA

Is the cut of the slope likely to become unstable in confined conditions?

● No

Provide the justification and reference to the relevant section/page in your stability report

○ Yes

Relevant design parameters

N/A

Minimum factor of safety

N/A

Section/page number of stability report which deals with this issue

SECTION 4.1 SRA

Is the presence of groundwater within the slope (both in confined and unconfined

conditions) likely to affect the integrity or stability of the slope?

● No

Provide the justification and reference to the relevant section/page in your stability report

SECTION 4.1 SRA

○ Yes

Relevant design parameters

N/A

Minimum factor of safety

N/A

Section/page number of stability report which deals with this issue

1.2.16 **Assessment of the basal lining system**

Is the presence of excessive settlement within the sub-grade (both in confined and unconfined conditions) likely to affect the integrity or stability of the landfill liner?

● No

Provide the justification and reference to the relevant section/page in your stability report

○ Yes

Relevant design parameters

N/A

Minimum factor of safety

N/A

Section/page number of stability report which deals with this issue

SECTION 5.0 SRA

Is the presence of cavities within the sub-grade (both in confined and unconfined conditions) likely to affect the integrity or stability of the landfill liner?

● No

Provide the justification and reference to the relevant section/page in your stability report

○ Yes

Relevant design parameters

Minimum factor of safety

Section/page number of stability report which deals with this issue

Is basal heave at the base of the landfill likely to affect the integrity or stability of the installation liner?

● No

Provide the justification and reference to the relevant section/page in your stability report

SECTION 5.0 SRA

○ Yes

Relevant design parameters

Minimum factor of safety

Section/page number of stability report which deals with this issue

Assessment of slope lining system

1.2.17 **Which of the following is to be used in the slope lining system?**

☐ Mineral-only barriers

1.2.18 **Assessment of mineral-only barriers**

Will the material and construction method used result in stability failure in unconfined conditions?

◯ No

Provide the justification and reference to the relevant section/page in your stability report

N/A

◯ Yes

Relevant design parameters

N/A

Minimum factor of safety

N/A

Section/page number of stability report which deals with this issue

N/A

Will the material and construction method used result in stability failure in confined conditions?

○ No

Provide the justification and reference to the relevant section/page in your stability report

N/A

○ Yes

Relevant design parameters

N/A

Minimum factor of safety

N/A

Section/page number of stability report which deals with this issue

N/A

Will the material and construction method used result in integrity failure in

unconfined conditions?

○ No

Provide the justification and reference to the relevant section/page in your stability report

N/A

○ Yes

Relevant design parameters

N/A

Minimum factor of safety

N/A

Section/page number of stability report which deals with this issue

N/A

Will the material and construction method used result in integrity failure in confined conditions?

◯ No

Provide the justification and reference to the relevant section/page in your stability report

◯ Yes

Relevant design parameters

N/A

Minimum factor of safety

N/A

Section/page number of stability report which deals with this issue

N/A

■ Mineral-geosynthetic composite barriers

1.2.19 **Assessment of mineral-geosynthetic composite barriers**

Will the material interfaces used result in stability failure in unconfined conditions?

● No

Provide the justification and reference to the relevant section/page in your stability report

SECTION 6.0 SRA

◯ Yes

Relevant design parameters

Minimum factor of safety

Section/page number of stability report which deals with this issue

Will the material interfaces used result in stability failure in confined conditions?

● No

Provide the justification and reference to the relevant section/page in your stability report

SECTION 6.0 SRA

○ Yes

Relevant design parameters

Minimum factor of safety

Section/page number of stability report which deals with this issue

Will the material used result in integrity failure in unconfined conditions?

● No

Provide the justification and reference to the relevant section/page in your stability report

SECTION 6.0 SRA

○ Yes

Relevant design parameters

Minimum factor of safety

Section/page number of stability report which deals with this issue

Will the material used result in integrity failure in confined conditions?

○ No

Provide the justification and reference to the relevant section/page in your stability report

○ Yes

Relevant design parameters

Minimum factor of safety

Section/page number of stability report which deals with this issue

1.2.20 **Assessment of the waste**

Are the temporary waste slopes within the landfill likely to become unstable?

● No

Provide the justification and reference to the relevant section/page in your stability report

SRA SECTION 2.5 PAGE 5

○ Yes

Relevant design parameters

Minimum factor of safety

Section/page number of stability report which deals with this issue

Is leachate re-circulation likely to make the waste mass unstable?

Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non- reactive wastes)** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked

● No

Provide the justification and reference to the relevant section/page in your stability report

SECTION 8.0 SRA

○ Yes

Relevant design parameters

Minimum factor of safety

Section/page number of stability report which deals with this issue

Is the waste mass at pre-settlement contours likely to become unstable? What is the steepest profile?

● No

Provide the justification and reference to the relevant section/page in your stability report

○ Yes

Relevant design parameters

Minimum factor of safety

Section/page number of stability report which deals with this issue

Is the waste mass at post-settlement contours likely to be come unstable?

● No

Provide the justification and reference to the relevant section/page in your stability report

N/A

○ Yes

Relevant design parameters

Minimum factor of safety

Section/page number of stability report which deals with this issue

Is the settlement within the waste likely to impact on the effectiveness of the leachate and landfill gas collection system?

Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non- reactive wastes)** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked

● No

Provide the justification and reference to the relevant section/page in your stability report

○ Yes

Relevant design parameters

Minimum factor of safety

Section/page number of stability report which deals with this issue

Assessment of the capping system

1.2.21 **Which of the following will be used in the capping system?**

Select all that apply

☐ Mineral-only barrier

1.2.22 **Assessment of mineral-only barriers**

Is the cap likely to become unstable?

○ No

Provide the justification and reference to the relevant section/page in your stability report

○ Yes

Relevant design parameters

N/A

Minimum factor of safety

N/A

Section/page number of stability report which deals with this issue

N/A

Will the settlement within the waste mass affect the integrity of the cap?

○ No

Provide the justification and reference to the relevant section/page in your stability report

N/A

○ Yes

Relevant design parameters

N/A

Minimum factor of safety

Section/page number of stability report which deals with this issue

N/A

Will construction plant used on the cap affect its integrity?

○ No

Provide the justification and reference to the relevant section/page in your stability report

○ Yes

Relevant design parameters

N/A

Minimum factor of safety

N/A

Section/page number of stability report which deals with this issue

N/A

Will the gas pressures in the waste affect the integrity of the cap?

Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non-reactive wastes)** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked

○ No

Provide the justification and reference to the relevant section/page in your stability report

○ Yes

Relevant design parameters

N/A

Minimum factor of safety

N/A

Section/page number of stability report which deals with this issue

N/A

■ Mineral-geosynthetic composite barrier

1.2.23 Assessment of mineral-geosynthetic composite barriers

Will the material interfaces used in the cap result in stability failure?

● No

Provide the justification and reference to the relevant section/page in your stability report

SECTION 9.0 SRA

○ Yes

Relevant design parameters

Minimum factor of safety

Section/page number of stability report which deals with this issue

Will the materials used within the cap result in integrity failure?

● No

Provide the justification and reference to the relevant section/page in your stability report

SECTION 9.0 SRA

○ Yes

Relevant design parameters

Minimum factor of safety

Section/page number of stability report which deals with this issue

Will settlements within the waste mass affect the integrity of the cap?

● No

Provide the justification and reference to the relevant section/page in your stability report

SECTION 9.0 SRA

○ Yes

Relevant design parameters

Minimum factor of safety

Section/page number of stability report which deals with this issue

Will construction plant used on the cap affect its integrity?

● No

Provide the justification and reference to the relevant section/page in your stability report

SECTION 9.0 SRA

○ Yes

Relevant design parameters

Minimum factor of safety

Section/page number of stability report which deals with this issue

Will the gas pressures in the waste affect the stability or integrity of the cap?

Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non-reactive wastes)** on page 1 is ticked Applies if an existing inert landfill**?** on page 1 is ticked

● No

Provide the justification and reference to the relevant section/page in your stability report

SECTION 9.0 SRA

○ Yes

Relevant design parameters

Minimum factor of safety

Section/page number of stability report which deals with this issue

Landfill gas generation and risk assessment

A landfill gas generation assessment for your installation

Your landfill gas management plan should be based on estimates of the rates of gas production on an annual basis (e.g. using an appropriate model). These estimates need to take into account the types and quantities of wastes to be accepted and, if appropriate, the characteristics of the wastes already deposited at the installation (e.g. moisture content). All calculations and assumptions must be specified within the gas management plan.

1.2.24 **Provide a gas generation profile forecast for your installation in graphical form including uncertainty estimates**

Document reference:

SECTION 2.5 GRA PAGE 10

1.2.25 **In what year do you propose to start collecting landfill gas?**

Applies if **Yes, there is a need to collect landfill gas** on page 63 is ticked Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non- reactive wastes)** on page 1 is ticked Applies if an existing inert landfill**?** on page 1 is ticked

Year

2006

Pathways and environmental monitoring

Landfill gas risk assessment

1.2.26 **Does your landfill gas risk assessment address the following key issues?**

Sub-surface emissions e.g. perimeter borehole spacing

○ No

Provide the justification and reference to the relevant section/page number of your landfill gas risk assessment

● Yes

Section/page number of landfill gas risk assessment and any comments

SECTION 1.0 GRA

Surface emissions
No

○

Provide the justification and reference to the relevant section/page number of your landfill gas risk assessment

● Yes

Section/page number of landfill gas risk assessment and any comments

SECTION 1.0 GRA

Emissions from landfill gas engines

Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non- reactive wastes)** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked Applies if **Yes, there is a need to collect landfill gas** on page 63 is ticked

○ No

Provide the justification and reference to the relevant section/page number of your landfill gas risk assessment

● Yes

Section/page number of landfill gas risk assessment and any comments

SECTION 2.5.1 GRA

Emissions from landfill gas flares	Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non- reactive wastes)** on page 1 is ticked Applies if **Yes, there is a need to collect landfill gas** on page 63 is ticked ○ No Provide the justification and reference to the relevant section/page number of your landfill gas risk assessment ● Yes Section/page number of landfill gas risk assessment and any comments SECTION 2.5.1 GRA PAGE 12
Ambient air quality at the boundary of the installation	○ No Provide the justification and reference to the relevant section/page number of your landfill gas risk assessment ● Yes SECTION 1.4 GRA Section/page number of landfill gas risk assessment and any comments receptors including Habitats Regulation sites
Ambient air quality at local sensitive	○ No Provide the justification and reference to the relevant section/page number of your landfill gas risk assessment ● Yes Section/page number of landfill gas risk assessment and any comments SECTION 3.4.4 GRA
Derivation of landfill gas control & trigger levels	○ No Provide the justification and reference to the relevant section/page number of your landfill gas risk assessment ● Yes Section/page number of landfill gas risk assessment and any comments PAGE 12 GRA / PAGE 26 GRA
Design of your monitoring programme for landfill gas emissions	○ No Provide the justification and reference to the relevant section/page number of your landfill gas risk assessment ● Yes Section/page number of landfill gas risk assessment and any comments

Combined emissions from utilisation plants and flares

1.2.27 **Has dispersion modelling been undertaken to predict the following?**

The location of the maximum ground-level concentrations from the proposed utilisation plant and flares	○ No ● Yes	Provide the justification and reference to the relevant section/page number of your landfill gas risk assessment Section/page number of landfill gas risk assessment and any comments
The maximum ground level concentrations for relevant compounds and relevant averaging times (e.g. averaging times of National Air Quality Objectives)?	● No ○ Yes	Provide the justification and reference to the relevant section/page number of your landfill gas risk assessment Section/page number of landfill gas risk assessment and any comments
Appropriate stack heights for both utilisation plant and flares?	○ No ● Yes	Provide the justification and reference to the relevant section/page number of your landfill gas risk assessment Section/page number of landfill gas risk assessment and any comments

Risk assessment for nuisance and health issues

1.2.28 **Provide a copy of the risk identification template for the installation using the Authority's Procedure for identifying risks from landfills**

Document reference

SITE MANAGEMENT SYSTEM DOCUMENT

1.2.29 **Provide a copy of the hazards, receptors and high sensitivity receptor assessment templates for the installation using the Authority's Procedure for identifying risks from landfills**

Document reference

SITE MANAGEMENT SYSTEM DOCUMENT

1.2.30 **Do the risk assessments indicate the need to carry out risk management or monitoring measures for any of the following?**

Noise and vibration	○ No	Provide the justification and reference to the relevant section/page number of risk assessment
	● Yes	SMS SECTION 19.2 PAGE 107
Odour	○ No	Provide the justification and reference to the relevant section/page number of risk assessment
	● Yes	SMS SECTION 15.2 PAGE 87
Particulate matter	○ No	Provide the justification and reference to the relevant section/page number of risk assessment
	● Yes	SMS SECTION 14.1 PAGE 84
Litter	○ No	Provide the justification and reference to the relevant section/page number of risk assessment
	● Yes	SMS SECTION 17.2 PAGE 97
Mud on highway	○ No	Provide the justification and reference to the relevant section/page number of risk assessment
	● Yes	SMS SECTION 16.2 PAGE 94
Vermin, birds and insects	○ No	Provide the justification and reference to the relevant section/page number of risk assessment
	● Yes	SMS SECTION 18.2 PAGE 102

Habitats risk assessment carried out under the Habitats Regulations

The Flora, Fauna & Natural Habitats protection Regulations, 2003 referred to as 'the Habitats Regulations', require the Authority, 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. Whether your site is affected by the Habitats Regulations is determined by its proximity to a European Site. 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 for all IPPC permit applications. In general the specified distance is 2km unless the site could attract gulls and falls within 5km of an

SPA or other

vulnerable site

1.2.31 **Is the landfill within the specified distance of any European site?**

● No

○ Yes

What is

What is the distance from the landfill boundary to any European Site?

N/A

repeatable group starts here>

1.2.32 European site

If there is more than one relevant European Site, please reference each and provide separate information for each.

Name of site

N/A

What are the designated features of the European site?

Response or document reference

N/A

1.2.33 **Could the landfill be responsible for any adverse effects on the integrity of the European site?**

If there is a relevant 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, particulate matter, birds/vermin/insects, litter, and disturbance (noise & vibration).

Please ensure that for each hazard you consider all relevant activities/ emissions

● No

○ Yes

1.2.34 **Which of the following hazards could be responsible for any adverse effects on the integrity of the European site?**

☐ Toxic contamination

What are the designated species or habitats of the European site that are of relevance to this hazard?

Response or document reference

Determine whether the hazard, when considered alone, has an adverse effect on the integrity of the European site and its relevant features.

Response or document reference

N/A

Are you aware of other activities that may be impacting on the integrity of the European site e.g. sewage treatment works, quarrying or an airport? Identify any such activities that are relevant to this hazard.

Response or document reference

N/A

Can adverse affects be avoided by modifying the landfill activity, or imposing restrictions on how the activity is undertaken?

Response or document reference

N/A

☐ Nutrient enrichment

What are the designated species or habitats of the European site that are of relevance to this hazard?

Response or document reference

Determine whether the hazard, when considered alone, has an adverse effect on the integrity of the European site and its relevant features.

Response or document reference

N/A

Are you aware of other activities that may be impacting on the integrity of the European site e.g. sewage treatment works, quarrying or an airport? Identify any such activities that are relevant to this hazard.

Response or document reference

N/A

Can adverse affects be avoided by modifying the landfill activity, or imposing restrictions on how the activity is undertaken?

Response or document reference

☐ Habitat loss or physical damage

What are the designated species or habitats of the European site that are of relevance to this hazard?

Response or document reference

N/A

Determine whether the hazard, when considered alone, has an adverse effect on the integrity of the European site and its relevant features.

Response or document reference

N/A

Are you aware of other activities that may be impacting on the integrity of the European site e.g. sewage treatment works, quarrying or an airport? Identify any such activities that are relevant to this hazard.

Response or document reference

N/A

Can adverse affects be avoided by modifying the landfill activity, or imposing restrictions on how the activity is undertaken?

Response or document reference

N/A

☐ Siltation

What are the designated species or habitats of the European site that are of

relevance to this hazard?

Response or document reference

N/A

Determine whether the hazard, when considered alone, has an adverse effect on the integrity of the European site and its relevant features.

Response or document reference

N/A

Are you aware of other activities that may be impacting on the integrity of the European site e.g. sewage treatment works, quarrying or an airport? Identify any such activities that are relevant to this hazard.

Response or document reference

N/A

Can adverse affects be avoided by modifying the landfill activity, or imposing restrictions on how the activity is undertaken?

Response or document reference

N/A

☐ Smothering

What are the designated species or habitats of the European site that are of relevance to this hazard?

Response or document reference

Determine whether the hazard, when considered alone, has an adverse effect on the integrity of the European site and its relevant features.

Response or document reference

N/A

Are you aware of other activities that may be impacting on the integrity of the European site e.g. sewage treatment works, quarrying or an airport? Identify any such activities that are relevant to this hazard.

Response or document reference

N/A

Can adverse affects be avoided by modifying the landfill activity, or imposing restrictions on how the activity is undertaken?

Response or document reference

N/A

☐ Disturbance

What are the designated species or habitats of the European site that are of relevance to this hazard?

Response or document reference

Determine whether the hazard, when considered alone, has an adverse effect on the integrity of the European site and its relevant features.

Response or document reference

N/A

Are you aware of other activities that may be impacting on the integrity of the European site e.g. sewage treatment works, quarrying or an airport? Identify any

N/A

such activities that are relevant to this hazard.

Response or document reference

N/A

Can adverse affects be avoided by modifying the landfill activity, or imposing restrictions on how the activity is undertaken?

Response or document reference

N/A

☐ Predation

What are the designated species or habitats of the European site that are of relevance to this hazard?

Response or document reference

Determine whether the hazard, when considered alone, has an adverse effect on the integrity of the European site and its relevant features.

Response or document reference

N/A

Are you aware of other activities that may be impacting on the integrity of the European site e.g. sewage treatment works, quarrying or an airport? Identify any such activities that are relevant to this hazard.

Response or document reference

N/A

Can adverse affects be avoided by modifying the landfill activity, or imposing restrictions on how the activity is undertaken?

Response or document reference

N/A

repeatable group ends here -->

ECOLOGICAL SURVEYS – ADDENDUM SECTION 5.0 PAGE 6

2 Regulatory specification

2.1 Installation type

2.1.1 **Maximum total capacity of installation including, if appropriate, wastes already deposited in existing areas covered by this application:**

m3 post settlement

500,000 m^3

tonnes (state conversion factors used)

2.1.2 **Complete the following area designation table with reference to the drawing required by Question 1.1.2. This table will detail all areas of infilling at the site and future areas separately identified, for example Cell 1, Phase A**

Applies if **an existing hazardous landfill?** on page 1 is ticked Applies if **an existing non-hazardous landfill?** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked

Area designation	Status	Wastes that have been and are intended to be deposited in this area of the installation			
		Hazardous	Stable and non-reactive hazardous	Non-hazardous	Inert
	○ Closed ○ Operational ● Pre-operational – engineering of liner ○ Pre-operational – engineering design			✓	

2.2 Waste types and quantities

Regulation 6 of the Landfill Regulations 2002 defines the types of wastes that are prohibited from being accepted at landfills. Regulation 8 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 Schedule2 of the 2002 Regulations. Schedule 2 also describes general principles for the acceptance of waste into the various classifications of landfill. The risk assessments in Section 1 will also affect the waste types which may be accepted at your installation and you will be required to make reference to this as part of the description of the waste.

Applies if **an existing hazardous landfill?** on page 1 is ticked

Co-disposal

If you are classified as a landfill for hazardous waste and you wish to continue to co-dispose hazardous and non-hazardous wastes until 16 July 2004 then you must first tell us about all of the wastes you propose to accept up to 16 July 2004 in this section. You must also provide a document reference of the details of the loading rates which currently apply at your landfill site.
You should also tell us about wastes you propose to accept after 16 July 2004. In your improvement plan you must provide details of how you will manage the change in waste types and waste acceptance criteria to accept the wastes listed in response to Question 2.2.5.

Lists of waste types

You must refer to the Hazardous Waste Directive (LN337/2001)and to the European Waste Classification system.

Wastes for disposal

Waste for disposal is any incoming waste being brought onto the installation to be placed in the landfill (not for capping, engineering or restoration).

2.2.1 **List the waste types you propose to accept for disposal at your installation.**

Applies if **a new hazardous landfill?** on page 1 is ticked Applies if **Non- hazardous landfill (this includes sites which will also accept hazardous stabilised non-reactive wastes)** on page 1 is ticked Applies if **Inert landfill** on page 1 is ticked

Use schedule 1 of LN337 of 2001 to guide you. For each waste type you must show:

- *The full EWC code*
- *Description including physical description e.g. solid, sludge, nuisance risk*
- *Waste classification i.e. hazardous, non-hazardous, stable, non reactive hazardous waste.*

Document reference

SMS APPENDIX 1

2.2.2 **Are you a hazardous site who wishes to continue to co-dispose hazardous and non-hazardous wastes**

Applies if **an existing hazardous landfill?** on page 1 is ticked

● No

2.2.3 **List the waste types you will accept for disposal at your installation**

Use schedule 1 of LN337 of 2001 to guide you.

For each waste type you must show:

- *The full EWC code*
- *Description including physical description e.g. solid, sludge, nuisance risk.*
- *Waste classification i.e. hazardous, non-hazardous, stable, non- reactive hazardous waste*

Document reference

SMS APPENDIX 1 (+ ADDENDUM PAGE 17)

◯ Yes

2.2.4 **List the waste types you propose to accept for disposal at your installation**

Use schedule 1 of LN337 of 2001 to guide you.

For each waste type you must show:

- *The full EWC code*
- *Description including physical description e.g. solid, sludge, nuisance risk*
- *Waste classification i.e. hazardous, non-hazardous, stable, non reactive hazardous waste.*

Document reference

For each waste type you must show:

- *The full EWC code*
- *Description including physical description e.g. solid, sludge, nuisance risk*
- *Waste classification i.e. Hazardous, non-hazardous, stable, non reactive hazardous waste.*

In your improvement plan you must provide details of how you will manage the change in waste types and waste acceptance criteria Document reference

SMS APPENDIX 2 (+ ADDENDUM)

Wastes for restoration

Waste for restoration or on-site engineering, for the purposes of this section, is any incoming waste being brought onto the installation for the purposes of engineering, capping and restoration.

2.2.5 **List the waste types that will be used for capping, engineering and restoration**

Use schedule 1 of LN337 of 2001 to guide you.

For each waste type you must show:

- *The full EWC code*
- *Description including physical description e.g. solid, sludge, nuisance risk*
- *Waste classification*

Document reference

SMS APPENDIX 2

2.2.6 **What is the maximum quantity of waste that is deposited in the installation in any year?**

Annual waste input limits **Category**	**Limit tonnes/ year**	**Comments**
Hazardous waste	NA	NA
Stable, non-reactive hazardous waste	NA	NA
Non-hazardous waste	250,000	NA
Inert waste	NA	NA
Total	250,000	NA

Waste acceptance criteria and procedures

Regulation 10 of the Landfill Regulations 2002 requires you to ensure that wastes delivered to your 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 2 of the Landfill Regulations 2002.

2.2.7 **Your waste acceptance procedures must include the following information and must be in place before any waste can be accepted under the permit**

- *The waste acceptance criteria for the installation*
- *Level 1 basic characterisation of wastes: quality assured procedures and method of recording the results*
- *Level 2 compliance testing of wastes: quality assured procedures and method of recording the results*
- *Level 3 On-site Verification of wastes: quality assured procedures and method of recording the results*
- *Sampling plan, including quality assured methods and procedures for sampling and testing of wastes and method of recording the results*
- *Method for checking that the waste has been treated before delivery to the installation and recording the results*
- *Method for ensuring that waste is stored and handled properly prior to final deposit*
- *Method for ensuring that wastes that have been rejected during the acceptance procedures are removed from the installation within 24 hours of the quarantine container becoming full, and in any event within 5 days of receipt at the installation*
- *Method for ensuring that the Authority is notified as soon as reasonably possible if a waste delivery is rejected*

Document reference of waste acceptance procedures

SMS SECTION 3.2 PAGE 14

2.3 Engineering and operational management and 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.

Landfill containment engineering

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

Use this section to

- *describe the containment engineering for each area of the landfill and to*
- *demonstrate that the containment engineering and leachate management and collection systems you provide will ensure compliance with the Groundwater Regulations and Landfill Regulations 2002.*

The specifications in this section should have been generated during the risk assessment process (hydrogeological, landfill gas, stability etc.). Provide specifications for

- *the base of all pre-operational areas*
- *side slopes for all pre-operational and*
- *capping for all areas as yet capped.*

You may have already provided as-built drawings for constructed areas as part of the conceptual model.

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.

Landfill containment engineering

If you intend to use the same engineering design for all subsequent cells/areas then you only need to complete this section of the form once. However, within a cell/area, you will need to repeat the section if the containment engineering is different for base, sides and/or cap.

If you envisage the design changing (due to site geology etc.) then you must repeat this section of the form for each cell/area.

Provide references to the appropriate risk assessment and section/page number or drawing which provides justification for each critical specification

2.3.1 **Will the same engineering design be used for all cells?**

● Same engineering design for all subsequent cells

○ Engineering design will change

<-- repeatable group starts here>

Name of cell this description applies to

2.3.2 **What part of the containment engineering does this specification apply to?**

Select all that apply

■ Basal engineering
■ Side slope engineering
■ Cap

2.3.3 **Give details of the sub-grade**

Material

LOWER CORALLINE LIMESTONE

Strength

UCS_{MAX}=25MPa / UCS_{MIN}=13MPa

Other relevant/critical design parameters

N/A

Reference of the appropriate risk assessment and section/page number or drawing which provides justification for each critical specification

STABILITY RISK ASSESSMENT SEC. 2.1

2.3.4 **Is there a natural geological barrier?**

○ No
● Yes

Material

LIMESTONE LOWER CORALLINE

Minimum thickness (m)

20 M

Reference of the appropriate risk assessment and section/page number or drawing which provides justification for each critical specification

N/A

2.3.5 **Is there an artificially established mineral barrier?**

This is required where the natural geological barrier does not provide sufficient attenuation capacity

○ No

Reference of the appropriate risk assessment and section/page number or drawing which provides justification for each critical specification

● Yes

2.3.6 **What materials are used?**

Select all that apply

■ Clay or similar 'natural' material

Minimum thickness (mm)

LIMESTONE FINES 500mm

Maximum hydraulic conductivity (m/s)

1×10^{-7}

Range of consistency limits (%)

N/A

Minimum shear strength kN/m2 (specify drained or undrained)

28.23, undrained

Attentuation capacity (e.g., CEC, foc, K_D)

Other relevant/critical design parameters

N/A

Relevant design document

CONSTRUCTION SPECIFICATION

Relevant drawing including cross-section

☐ Bentonite Enhanced Sand (BES)

Minimum thickness (mm)

Maximum hydraulic conductivity (m/s)

N/A

Minimum montmorillonite content of bentonite (mg/g)

N/A

Range of consistency limits (%)

N/A

Minimum shear strength (specify drained or undrained) kN/m2

N/A

Attentuation capacity (e.g., CEC, foc, K_D)

N/A

Other relevant/critical design parameters

N/A

Relevant design document

N/A

Relevant drawing including cross-section

N/A

■ Other material

<-- repeatable group starts here>

Description

GCL

Minimum thickness (mm)

N/A

Maximum hydraulic conductivity (m/s)

1×10^{-11}

Range of consistency limits (%)

Minimum shear strength (kN/m^2)(specify drained or undrained)

N/A

Attentuation capacity (e.g., CEC, foc, K_D)

N/A

Other relevant/critical design parameters

N/A

Relevant design document

N/A

Relevant drawing including cross-section

N/A

repeatable group ends here -->

2.3.7 **Is there an artificial sealing liner?**

Applies if **Arrangements needed** on page 9 is ticked

○ No

● Yes

2.3.8 **What materials are used?**

Select all that apply

■ Flexible membrane liner (e.g., HDPE, VLDPE etc.)

Description (type of FML to be used)

2mm DOUBLE TEXTURED

Design life (years)

>100 YRS

Minimum thickness (mm)

2mm

Confirm that installers are third-party accredited for welding & installation

YES

Will a geophysical survey be carried out post-installation?

NO

Relevant design document

CONSTRUCTION SPECIFICATION DOC

Relevant drawing including cross-section

ZW011/04

☐ Dense asphaltic concrete

Minimum thickness (mm)

N/A

Maximum hydraulic conductivity (m/s)

N/A

Strength

N/A

Materials

N/A

Mix composition (bitumen type & grade, aggregate and filler properties)

N/A

Thermal stability

N/A

Physical stability (flow resistance)

N/A

Chemical resistance (of bitumen, filler & aggregate)

N/A

Longevity

N/A

Maximum acceptable deformation (differential settlements)

N/A

Compatibility with adjacent materials

N/A

Relevant design document

N/A

Relevant drawing including cross-section

N/A

☐ Compacted clay liner

Minimum thickness (mm)

Maximum hydraulic conductivity (m/s)

N/A

Range of consistency limits (%)

N/A

Minimum shear strength (specify drained or undrained) kN/m2

N/A

Attenuation capacity (e.g. CEC, foc, K_D)

N/A

Other relevant/critical design parameters

N/A

Relevant design document

N/A

Relevant drawing including cross-section

N/A

■ Geosynthetic clay liner (GCL)

Maximum hydraulic conductivity (m/s)

5 x 10 -11

Minimum thickness (unhydrated, mm)

6

Minimum index flux (m3/m2)/s

5 x 10 -9

Internal shear strength (kN/m2 and factor of safety)

12 kN/m TENSILE STRENGTH /

Minimum montmorillonite content (mg/g)

> 75%

Other relevant/critical design parameters

Relevant design document

CONSTRUCTION SPECIFICATION

Relevant drawing including cross-section

☐ Bentonite enhanced sand (BES)

Maximum hydraulic conductivity (m/s)

Minimum thickness (mm)

N/A

Minimum montmorillonite content of bentonite (mg/g)

N/A

Range of consistency limits (%)

N/A

Minimum shear strength (specify drained or undrained) (kN/m2)

N/A

Attenuation capacity (e.g. CEC, foc, K_D)

N/A

Other relevant/critical design parameters

N/A

Relevant design document

N/A

Relevant drawing including cross-section

N/A

Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non-reactive wastes)** on page 1 is ticked Applies if an existing inert landfill**?** on page 1 is ticked

2.3.9 **Provide details of the leachate collection layer**

This is required where there is an artificial sealing liner

Basal gradients

N/A

Material used & grading if appropriate

N/A

Minimum thickness (mm)

N/A

Maximum hydraulic conductivity (m/s)

N/A

Minimum strength (kN/m2)

N/A

Chemical compatibility

N/A

Leachate collection extraction pipework and wells

Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non-reactive wastes)** on page 1 is ticked Applies if an existing inert landfill**?** on page 1 is ticked

2.3.10 **Provide details of the leachate collection pipework**

This is required where there is a leachate collection layer

Pipework layout & spacing

SPINE DRAIN

Minimum pipework strength

PN 12.5 SOR 11

Perforation layout

1-2 SLOTS

Bedding material & thickness

500mm

Will maintenance be provided?

YES

Relevant design document

CONSTRUCTION SPECIFICATION

Relevant drawing including cross-section

ZW011/04

2.3.11 **Provide details of the leachate extraction wells**

Type & location of well. *It may be sufficient to reference the drawings named in Section 1*

ZW011/04

Will you retrodrill, and if so, when?

NO

Type & design of foundation

N/A

Pipework material

SULPHATE RESISTANT CONCRETE RINGS

Minimum pipework diameter

1000mm

Minimum pipework strength

Pipework surround material

GRANULAR MATERIAL

Relevant design document

CONSTRUCTION SPECIFICATION

Relevant drawing including cross-section

ZW011/04

2.3.12 **Is there a surface water drainage layer?**

○ No

Provide the justification and reference to the relevant section/page number of the risk assessment

● Yes

Give specifications

GEOCOMPOSITE DRAINAGE LAYER

Relevant design document

HYDROGEOLOGICAL RISK ASSESSMENT

Relevant drawing including cross-section

ZW012/04

Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non- reactive wastes)** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked

2.3.13 **Is there a groundwater management system?**

○ No

Provide the justification and reference to the relevant section/page number of the risk assessment

● Yes

Give specifications

SYSTEM OF 6 BOREHOLES

Relevant design document

HYDROGEOLOGICAL RISK ASSESSMENT

Relevant drawing including cross-section

ZW008/04

2.3.14 **Is there a leakage detection system?**

Applies if **Arrangements needed** on page 9 is ticked

○ No

Provide the justification and reference to the relevant section/page number of the risk assessment

● Yes

Give specifications

MONITORING BOREHOLES AROUND SITE

Relevant design document

HYDROGEOLOGICAL RISK ASSESSMENT

Relevant drawing including cross-section

ZW005A/04

2.3.15 **Is there leachate storage and treatment?**

Applies if **Arrangements needed** on page 9 is ticked

○ No

Provide the justification and reference to the relevant section/page number of the risk assessment

● Yes

Give specifications

LEACHATE STORAGE SUMP
VOLUME 500L

Relevant design document

SMS

Relevant drawing including cross-section

ZW011/04

repeatable group ends here -->

Waste deposit and emplacement

2.3.16 **Are waste deposit and emplacement procedures in place for the installation, which ensure the following?**

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.

○ No

Justification and/or date when they will be in place meeting the relevant standard – which must be prior to the acceptance of any waste under the permit

● Yes

SMS SECTION 5.2.3 PAGE 27

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.

○ No

Justification and/or date when they will be in place meeting the relevant standard – which must be prior to the acceptance of any waste under the permit

● Yes

SMS SECTION 5.2.4 PAGE 28

The maximum and minimum gradients are specified and complied with for the working face, intermediate slopes and the final slopes of the landform.

○ No

Justification and/or date when they will be in place meeting the relevant standard – which must be prior to the acceptance of any waste under the permit

● Yes

SMS SECTION 5.2.4 PAGE 29

Waste is emplaced in each cell in such a way as to prevent damage to the engineering of the barriers and liners, and, if appropriate, the leachate and landfill gas management systems.

○ No

Justification and/or date when they will be in place meeting the relevant standard – which must be prior to the acceptance of any waste under the permit

● Yes

SMS SECTION 5.2.5 PAGE 29

Waste is discharged prior to placement in the appropriate operational areas, in a manner that prevents the releases to the environment of particulate matter, litter, odour and other nuisances.	○ No Justification and/or date when they will be in place meeting the relevant standard – which must be prior to the acceptance of any waste under the permit ● Yes SMS SECTION 5.2.5 PAGE 29
Waste is not discharged in adverse weather conditions that may give rise to the production of airborne materials such as litter or particulate matter.	○ No Justification and/or date when they will be in place meeting the relevant standard – which must be prior to the acceptance of any waste under the permit ● Yes SMS SECTION 5.2.6 PAGE 30
Waste is placed and compacted in the appropriate operational areas, to ensure stable surfaces and slopes.	○ No Justification and/or date when they will be in place meeting the relevant standard – which must be prior to the acceptance of any waste under the permit ● Yes SMS SECTION 5.2.4 PAGE 29/30
The final layers of waste are selected and inspected during placement to ensure that these do not cause damage to the final capping.	○ No Justification and/or date when they will be in place meeting the relevant standard – which must be prior to the acceptance of any waste under the permit ● Yes SMS SECTION 5.2.7 PAGE 30
Appropriate handling and compaction plant and techniques are used.	○ No Justification and/or date when they will be in place meeting the relevant standard – which must be prior to the acceptance of any waste under the permit ● Yes SMS SECTION 5.2.8 PAGE 30
The size of the operational area is limited while accommodating the placement of the waste.	○ No Justification and/or date when they will be in place meeting the relevant standard – which must be prior to the acceptance of any waste under the permit ● Yes SMS SECTION 5.2.20 PAGE 34

Leachate management and monitoring

Applies if **an existing hazardous landfill?** on page 1 is ticked Applies if **an existing non-hazardous landfill?** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked Applies if **Arrangements needed** on page 9 is ticked.

Leachate is defined by the Landfill Regulations 2002 as any liquid percolating through the deposited waste and emitted from or contained within a landfill. Leachate composition is dependant on the waste types accepted and the age of the waste and thus landfills for hazardous waste will produce different leachate to landfills for non-hazardous waste. This section of the form should be completed with reference to your hydrogeological risk assessment.
All emissions to surface water require consent to discharge from the Authority which may be incorporated into the IPPC permit
Where leachate is treated by pumping to an off-site sewage treatment works, aneffluent treatment/discharge permit is required from the Water Services Corporation .

Leachate management

2.3.17 **Which of the following applies to the leachate treatment plant at your installation?**

Select all that apply

☐ Disposal of hazardous waste

◯ in a facility with a capacity of less than 10 tonnes per day

◯ in a facility with a capacity of more than 10 tonnes per day

■ Disposal of non-hazardous waste

◯ in a facility with a capacity of less than 50 tonnes per day

● in a facility with a capacity of more than 50 tonnes per day

2.3.18 **Are documented systems, procedures and work instructions in place for leachate management for your landfill that include the following:**

water balance calculations for each cell and the overall installation?	○ No Justification and/or date when they will be in place – which must be prior to the acceptance of any waste under the permit ● Yes HGA APPENDIX 1 ZWR02/04
extraction and collection?	○ No Justification and/or date when they will be in place – which must be prior to the acceptance of any waste under the permit ● Yes SMS SECTION 6.4 PAGE 35
details of leachate treatment methods?	○ No Justification and/or date when they will be in place – which must be prior to the acceptance of any waste under the permit ● Yes SMS SECTION 6.6.5/6.6.6/6.6.7 PAGE 37/38
details of leachate disposal and discharge methods and routes?	○ No Justification and/or date when they will be in place – which must be prior to the acceptance of any waste under the permit ● Yes SMS SECTION 6.7 PAGE 38
temporary leachate management systems?	○ No Justification and/or date when they will be in place – which must be prior to the acceptance of any waste under the permit ● Yes SMS SECTION 6.6.4 PAGE 37
details of system monitoring (including telemetry), during pre-operational, operational, closure and after care phases (volume, meteorological conditions and quality)?	○ No Justification and/or date when they will be in place – which must be prior to the acceptance of any waste under the permit ● Yes SMS SECTION 7.3 PAGE 39

details of control strategies, including phasing of operations and re-circulation?	○ No Justification and/or date when they will be in place – which must be prior to the acceptance of any waste under the permit ● Yes SMS SECTION 6.6.4 PAGE 37
operation, appropriate inspection and maintenance procedures?	○ No Justification and/or date when they will be in place – which must be prior to the acceptance of any waste under the permit ● Yes SMS SECTION 7.4 PAGE 40
Dissolved gas content control?	○ No Justification and/or date when they will be in place – which must be prior to the acceptance of any waste under the permit ● Yes SMS SECTION 6.6.7 PAGE 38

2.3.19 **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 from the date that waste is accepted under the permit?**

○ No

Justification and/or date when they will be in place – which must be prior to the acceptance of any waste under the permit

● Yes

Leachate treatment techniques

Use this section 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.

2.3.20 **Is leachate treated**

● on-site

DETAILS IN SMS 6.6.7 PAGE 38

Primary treatment

<-- repeatable group starts here>

2.3.21 **Type of plant**

Name or description of plant

2.3.22 **Performance parameters**

Average daily flow (m^3/d)

NA

Peak hourly maximum (m^3/h)

NA

Will you monitor turbidity/suspended solids on-line

NA

Suspended solids (mg/l) on screen effluent

NA

Suspended solids (mg/l)

NA

Other performance parameters

<-- repeatable group starts here>

Name of parameter

NA

Measure and units

NA

repeatable group ends here -->

repeatable group ends here -->

Secondary treatment

<-- repeatable group starts here>

2.3.23 **Type of plant**

Name or description of plant

NA

2.3.24 **Performance parameters**

Influent BOD/COD (mg/l)

NA

Effluent BOD/COD (mg/l)

NA

Mixed liquor suspended solids (mg/l)

NA

Metals (mg/l)

NA

Percent dry solids in influent and effluent

NA

Other performance parameters

<-- repeatable group starts here>

Name of parameter

NA

Measure and units

NA

repeatable group ends here -->

repeatable group ends here -->

Tertiary treatment

<-- repeatable group starts here>

2.3.25 **Type of plant**

Name or description of plant

NA

2.3.26 **Performance parameters**

Suspended solids (mg/l)

NA

Turbidity

NA

Conductivity

NA

Transmisivity (for UV)

NA

Coliform count

NA

Pathogenic analysis

NA

Other performance parameters

<-- repeatable group starts here>

Name of parameter

NA

Measure and units

NA

repeatable group ends here -->

repeatable group ends here -->

2.3.27 **Can any of the stages be bypassed?**

○ No

○ Yes

How often does it happen?

What steps are taken to reduce emissions

● off-site

Leachate treatment off-site

How leachate is treated is the operator's commercial decision and the operator must demonstrate that the chosen route is the Best Available Technique (BAT), whether it is treated on site or a third party is paid to treat it on their behalf. Note also that dilution is not a factor that can be claimed as a contribution to minimising pollution.

2.3.28 **Provide details of the treatment provided at the sewage treatment works or similar off-site merchant treatment facility**

The treatment at the sewage works must be equivalent to that achieved if the leachate were treated on-site, based on reduction of load (not just concentration) of each substance to the receiving water. Justify where it will not: in general this can be answered generically e.g. if the indicative BAT would be settlement followed by aerobic treatment and the STW has both these steps (noting that a

sewage treatment works will normally have a greater retention time than an on site plant) it can be concluded that the sewage treatment works is potentially at least as good as a dedicated plant. You may need to discuss these issues with your treatment provider.

Document reference

SMS SECTION 6.6.6 PAGE 37

2.3.29 **Provide details of sewage treatment plant bypass and protection:**
The probability of sewer bypass, via storm/emergency overflows or at intermediate sewage pumping stations must be acceptably low (you may need to discuss this with your sewerage operator)

% of the time the sewage treatment works is bypassed

NA

An estimate of the increased annual load of metals and persistent substances which will result from bypassing

NA

Summarise the action plans in the event of bypass, such as knowing when bypass is occurring, or even shutting down. Justify if there is no action taken

NA

What events could cause a release which could adversely effect the sewage treatment works and what actions (e.g. holding tanks, monitoring, batch release etc.) are taken to prevent this.

NA

THE FACILITY IS CURRENTLY OPERATIONAL AS A TEMPORARY NON-HAZARDOUS WASTE STORAGE FACILITY. TO DATE NO LEACHATE HAS BEEN GENERATED. AS A RESULT NO LEACHATE TREATMENT (ON-SITE OR OFF-SITE) HAS BEEN CONDUCTED.

Leachate monitoring

This section of your regulatory specification must be justified by the hydrogeological risk assessment you provided in Section 1

The risk assessments (hydrogeological, stability, landfill gas) described in section 1 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 landfill 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 the Authority 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 of the Authority.*

2.3.30 **Are leachate monitoring procedures (for quality and levels as appropriate) in place to ensure that assessment criteria and compliance limits are not exceeded?**

○ No

Date by which they will in place meeting the relevant standard which must be prior to the acceptance of waste under the permit

● Yes

Reference of procedures

SMS SECTION 7.5 PAGE 41

2.3.31 **Are contingency action plans in place in case assessment criteria and/or compliance limits are exceeded?**

◯ No

Date by which they will in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

Reference of contingency action plans

SMS SECTION 7.4

2.3.32 **Leachate level monitoring**

SMS SECTION 7.5

This question can be used for multiple monitoring locations if appropriate.

<-- repeatable group starts here>

Cell or phase number

Leachate level compliance point (e.g. LM1)*This should be remote from the leachate abstraction sump*

Control level (e.g. 0.5 metre above liner or 74m AOD)

0.5 m above liner

Compliance limit (e.g. 1 metre above liner or 74.5m AOD)

Frequency of monitoring

Relevant section & page number of hydrogeological risk assessment and any comments

HRA section 22.0 page 31

repeatable group ends here -->

2.3.33 **Leachate quality monitoring**

SMS SECTION 7.5

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

<-- repeatable group starts here>

Cell or phase number

CELL 1

Leachate sampling point (e.g. LSP1)

MP 1 Leachate monitoring point in cell 1

Leachate monitoring determinands* (e.g. ammonium, chloride, Mecoprop)*Note that you will not need to determine assessment criteria and compliance limits for every contaminant at your installation.*

N/A

Assessment criteria (e.g. ammonium = 400 mg/l), detection limit and accuracy

N/A

Compliance limit (e.g. ammonium = 800 mg/l) detection limit and accuracy

N/A

Frequency of monitoring

Monthly

Relevant section & page number of hydrogeological risk assessment and any comments

HRA section 15.0 Page 20

repeatable group ends here -->

Surface water management and monitoring

Surface water management plan

2.3.34 **Are documented systems, procedures and work instructions in place for surface water management at your installation which include the following:**

the designs and CQA plan?	○ No	Justification and/or date by which they will in place meeting the relevant standard which must be prior to the acceptance of waste under the permit
	● Yes	SMS SECTION 8.3 PAGE 43
precipitation and flood risk calculations?	○ No	Justification and/or date by which they will in place meeting the relevant standard which must be prior to the acceptance of waste under the permit
	● Yes	SMS SECTION 8.2 PAGE 43
details of engineered drainage systems including quarantine areas?	○ No	Justification and/or date by which they will in place meeting the relevant standard which must be prior to the acceptance of waste under the permit
	● Yes	SMS SECTION 8.5.1 PAGE 44 / SECTION 8.5.3 PAGE 44

	connection pipework configurations and alignments?	○ No Justification and/or date by which they will in place meeting the relevant standard which must be prior to the acceptance of waste under the permit ● Yes SMS SECTION 8.5.4 PAGE 45
	details of the mechanical control systems (e.g. weirs, penstocks)?	● No Justification and/or date by which they will in place meeting the relevant standard which must be prior to the acceptance of waste under the permit NA ○ Yes
	details of collected surface water treatment methods?	○ No Justification and/or date by which they will in place meeting the relevant standard which must be prior to the acceptance of waste under the permit ● Yes
	details of system monitoring, during pre-operational, operational, closure and after care phases (volume, meteorological conditions and quality)?	○ No Justification and/or date by which they will in place meeting the relevant standard which must be prior to the acceptance of waste under the permit ● Yes SMS SECTION 8.5.7 PAGE 45
	details of control strategies, including phasing of operations?	○ No Justification and/or date by which they will in place meeting the relevant standard which must be prior to the acceptance of waste under the permit ● Yes SMS SECTION 9.3 PAGE 47
	operation, inspection and maintenance procedures?	○ No Justification and/or date by which they will in place meeting the relevant standard which must be prior to the acceptance of waste under the permit ● Yes SMS SECTION 9.4 PAGE 48
2.3.35	**Does the surface water management plan 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 from the date that waste is accepted under the permit?**	○ No Justification and/or date by which they will in place meeting the relevant standard which must be prior to the acceptance of waste under the permit ● Yes SMS SECTION 8.2 PAGE 43

Discharges direct to controlled waters

Under the Environment Protection Act 2001 (as amended) you require permission from the t Authority if you want to discharge effluent to

- *water courses*
- *schedule 1 of LN337 of 2001 schedule 1 of LN337 of 2001 coastal water*
- *groundwaters*
- *land*

2.3.36 **Do you need to apply for permission (a Consent) to discharge effluent?**

○ No
○ Yes

Submit your completed Section E 'Discharges of Trade Effluent' of Environment Authority form WQP1 'Consent to Discharge' and provide the document reference

TO BE DETERMINED / NA

Surface water monitoring

This section of your regulatory specification must be supported by the hydrogeological and other risk assessments.

2.3.37 **Is surface water monitoring being provided for your landfill?**

○ No

Justification and/or date by which it will be in place meeting the relevant standard which must be prior to the acceptance of waste under the permit

● Yes

Give brief description of means and reference of monitoring plan

SMS SECTION 9.2

Surface water monitoring plan

2.3.38 **Is a surface water monitoring plan in place for the installation which provides the following information?**

surface water monitoring locations and schedules?

○ No

Justification and/or date by which it will be in place meeting the relevant standard which must be prior to the acceptance of waste under the permit

● Yes

ADDENDUM

monitoring schedules which specify:

- *the surface quality determinands to be monitored?*
- *the assessment criteria?*
- *the surface water flows to be measured?*
- *the frequency of sampling?*
- *the units, accuracy and detection limits for each determinand?*

○ No

Justification and/or date by which it will be in place meeting the relevant standard which must be prior to the acceptance of waste under the permit

● Yes

ADDENDUM

monitoring and sampling of surface water is carried out under quality controlled procedures in the field and the laboratory?

○ No

Justification and/or date by which it will be in place meeting the relevant standard which must be prior to the acceptance of waste under the permit

● Yes

SMS SECTION 9.

a contingency action plan, including possible corrective measures, if the relevant assessment criteria are exceeded?	○ No Justification and/or date by which it will be in place meeting the relevant standard which must be before the date waste can be accepted under the permit ● Yes SMS SECTION 9.3.2 PAGE 48
the recording and secure keeping of surface water monitoring and sampling data and results	○ No Justification and/or date by which it will be in place meeting the relevant standard which must be prior to the acceptance of waste under the permit ● Yes SMS SECTION 9.5 PAGE 49
the periodic submission (at least annually) of an interpretative report of surface water monitoring results	○ No Justification and/or date by which it will be in place meeting the relevant standard which must be prior to the acceptance of waste under the permit ● Yes SMS SECTION 9.5 PAGE 49

Surface water monitoring points

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

<-- repeatable group starts here>

2.3.39 **Surface water monitoring point(s)**

Name of monitoring point (e.g. SW 1, 2)

ADDENDUM

assessment criteria and compliance limits for every contaminant at your installation.

NA

Assessment criteria (e.g. ammonium = 0.25 mg/l), detection limit and accuracy

NA

Frequency of monitoring

NA

Relevant section & page number of hydrogeological risk assessment and any comments

NA

repeatable group ends here -->

TO BE AGREED WITH MEPA/MRA

Groundwater management and monitoring

This section of your regulatory specification must be justified by the hydrogeological risk assessment you describe in your answers to Section 1.

Groundwater monitoring and level management

2.3.40 **Is groundwater monitoring being provided for your landfill?**

○ No

Date by which it will be in place which must be prior to the acceptance of waste under the permit

●

Yes

Give brief description of means (e.g. groundwater monitoring boreholes, geophysical methods) and reference of groundwater monitoring plan.

SMS SECTION 10.0 PAGE 51

2.3.41 **Is management of groundwater levels being provided for your landfill?**

Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non- reactive wastes)** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked

○ No

● Yes

Give brief description of means, and reference to groundwater management plan.

SMS SECTION 10.0

Groundwater monitoring plan

2.3.42 **Is a groundwater monitoring plan in place for the installation which provides the following information?**

monitoring locations and schedules

●

No

Justification and/or date by which it will be in place meeting the relevant standard which must be prior to the acceptance of waste under the permit

TO BE AGREED WITH MEPA/MRA

● Yes

ADDENDUM

monitoring schedules which 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*

● No

Justification and/or date by which it will be in place meeting the relevant standard which must be prior to the acceptance of waste under the permit

TO BE AGREED WITH MEPA/MRA

● Yes

SMS SECTION 10.6.2 PAGE 55

quality controlled procedures in the field and the laboratory for monitoring and sampling groundwater

○ No

Justification and/or date by which it will be in place meeting the relevant standard which must be prior to the acceptance of waste under the permit

● Yes

ADDENDUM

borehole logs from the construction of the monitoring boreholes (note: you can include them in the hydrogeological risk assessment report instead).	○ No Justification and/or date by which it will be in place meeting the relevant standard which must be prior to the acceptance of waste under the permit ● Yes ~~SMS SECTION 10.4.2 PAGE 52~~
a contingency action plan, including possible corrective measures, if the relevant control and/or trigger levels are exceeded	○ No Justification and/or date by which it will be in place meeting the relevant standard which must be prior to the acceptance of waste under the permit ● Yes SMS SECTION 10.5.4 PAGE 54
recording and secure keeping of groundwater monitoring and sampling data and results	○ No Justification and/or date by which it will be in place meeting the relevant standard which must be prior to the acceptance of waste under the permit ● Yes
periodic submission (at least annually) of an interpretative report of groundwater monitoring results	○ No Justification and/or date by which it will be in place meeting the relevant standard which must be prior to the acceptance of waste under the permit ● Yes SMS SECTION 10.5.4 PAGE 54

Groundwater monitoring

The following section 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 (Section 1).
It can be used for multiple sampling locations if appropriate, and should be repeated for each location where the criteria are different.

2.3.43 **Groundwater monitoring point(s)**

<-- repeatable group starts here>

Name of monitoring point (e.g. BH 1, 2)

ALL DETAILS IN ADDENDUM

Groundwater monitoring determinands (e.g. ammonium, chloride, mecoprop) You will not need to determine assessment criteria and compliance limits for every contaminant at your installation.

ADDENDUM PAGE 8

Control level (e.g. ammonium = 0.25 mg/l), detection limit and accuracy

ADDENDUM PAGE 16

Trigger level (e.g. ammonium = 0.5 mg/l) detection limit and accuracy

ADDENDUM PAGE 16

Frequency of monitoring

ADDENDUM PAGE 8

Relevant section & page number of hydrogeological risk assessment and any comments

ADDENDUM PAGE 8 & 12

repeatable group ends here -->

Landfill gas management and monitoring

To successfully answer the questions under this section, you will need to have prepared a landfill gas generation assessment and a landfill gas risk assessment for your installation, and provided them in support of your answers to 'Landfill gas generation and risk assessment' in Section 1.2.

Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non- reactive wastes)** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked

2.3.44 **Is there a need to collect landfill gas?**

◯ No need to collect landfill gas

Provide the justification and reference to the relevant section/page number of the landfill gas risk assessment

● Yes, there is a need to collect landfill gas

Section/page number of landfill gas risk assessment

GRA PAGE 44

2.3.45 **Which of the following technical measures are required?**

☐ Landfill gas flaring

Reference of the appropriate risk assessment and section/page number and any comments

GRA

☐ Landfill gas utilisation

Reference of the appropriate risk assessment and section/page number and any comments

GRA

Landfill gas collection

Applies if **Yes, there is a need to collect landfill gas** on page 63 is ticked

Landfill gas management plan

2.3.46 **Is a documented landfill gas management plan in place for the installation that includes the following?**

◯ No

Justification and/or date by which it will be in place meeting the relevant standard which must be within 6 months of the issue of the permit

● Yes

SMS SECTION 11 PAGE 56

Gas production for installation life

Gas production calculations and assumptions.

◯ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit

● Yes

GRA SECTION 6.2 PAGE 36

Phased development Plans for gas collection, treatment and utilisation (including extraction from operational cells, capping etc.).	○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit	
	● Yes ~~SMS SECTION 11.7.5 PAGE 58~~	
Collection efficiency calculations and assumptions, throughout life of installation.	◯ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit	
	● Yes ~~GRA PAGE 44 / SMS SECTION 11.5 PAGE 57~~	
System capacity of utilisation and flaring plant (to ensure that sufficient capacity exists to handle maximum predicted gas generation).	◯ No Justification and/or date by which it will be in place meeting the relevant standard which must be within 6 months of the issue of the permit	
	● Yes GRA PAGE 44 / SMS SECTION 11.6 PAGE 57	

Gas system design and specification

Gas pre-treatment (if applicable). No	◯ Justification and/or date by which it will be in place meeting the relevant standard which must be within 6 months of the issue of the permit	
	● Yes SMS SECTION 11.7.10 PAGE 60	
Gas extraction wells. No	◯ Justification and/or date by which it will be in place meeting the relevant standard which must be within 6 months of the issue of the permit	
	● Yes SMS SECTION 11.7.5 PAGE 58	
Connection pipe-work and configuration.	◯ No Justification and/or date by which it will be in place meeting the relevant standard which must be within 6 months of the issue of the permit	
	● Yes SMS SECTION 11.7.7 PAGE 59	
Facilities for condensate removal. No	◯ Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit	
	● Ye ~~SMS SECTION 11.7.9 PAGE 60~~	
Control systems (e.g. valves, telemetry, alarm systems, interlock)	◯ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit	
	● Yes SMS SECTION 11.7.8 PAGE 59	

Regulatory specification | Engineering and operational management and monitoring

Gas flares, e.g. design specification: to include design capacity, turndown range, method of combustion control, proposed minimum retention time (s^{-1}) and minimum temperature (°C); function: to include capacity (%) of utilisation system if flare function is to back up the utilisation system, excess gas combustion	○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 11 7 11 PAGE 61
Utilisation plant, e.g. specification, gas flow rate	Applies if **Yes, there is a need to collect landfill gas** on page 63 is ticked ○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 11.7.12 PAGE 61
Temporary and emergency provisions.	○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 11.7.13 PAGE 62

Construction quality assurance

Roles and responsibilities.	○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes ~~SMS SECTION 11.7 PAGE 57~~
Quality assurance principles.	○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 11.7.2 PAGE 58
As built documentation.	○ No Justification and/or date by which it will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 11.7.2 PAGE 58
Validation report	○ No Justification and/or date by which it will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 11.7.2 PAGE 58

Operational techniques

Management responsibilities (e.g. utilisation plant)	○ No Justification and/or date by which it will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 11.8 PAGE 62
Routine operational procedures for extraction and collection (e.g. balancing of system)	○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 11.8.4 PAGE 63
Start up and shut down procedures for flare and utilisation plant	○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 11.8.2 PAGE 63
Measures to collect and control landfill gas where there is insufficient methane to support combustion	○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 11.8.6 PAGE 64
Management of odour and lateral migration while maintaining utilisation, e.g. separate systems	Applies if **Yes, there is a need to collect landfill gas** on page 63 is ticked ○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 11.8.6 PAGE 64
Measures additional to collection and flaring or utilisation, e.g. methane oxidation, gas barriers	○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 11.8.6 PAGE 64
Engine by-pass procedures following mechanical failure or non-routine situation.	○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 11.8.2 PAGE 63

Maintenance

Inspection programme.	○ No Justification and/or date by which it will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 11.0 PAGE 64

Planned and unplanned maintenance procedures.	○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 11.10 PAGE 64

Monitoring

System monitoring during pre-operational, operational, closure and aftercare stages (flow, pressure, composition).	○ No Justification and/or date by which it will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 11.11.1 PAGE 65
Meteorological monitoring. No	◯ Justification and/or date by which it will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 11.11.2 PAGE 65

Action plan

Procedures to be implemented in the event of ingress of air into the system.	○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 11.12.1 PAGE 65
Procedures to be implemented if leaks in the gas system are identified.	○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 11.12.2 PAGE 66

Data management and recording

Methods of maintaining system records.	○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 11.13 PAGE 66
Gas composition and volume records	○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 11.13 PAGE 66

Inspection and maintenance records	○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 11.13 PAGE 66
Monitoring records including those received by telemetry	○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 11.13 PAGE 66

Landfill gas flaring

Applies if **Landfill gas flaring** on page 63 is ticked
If your installation contains more than one type of flare please provide additional data sheets where necessary. schedule 1 of LN337 of 2001

2.3.47 **Does the flare include the following control features?**

flame detectors in the flare	○ No Provide justification ● Yes SMS TABLE 11.2 PAGE 61
automatic flame temperature controls	○ No Provide justification ● Yes SMS TABLE 11.2 PAGE 61
slam-shut valves	○ No Provide justification ● Yes SMS TABLE 11.2 PAGE 61
flame arrestors on the flare feed line?	○ No Provide justification ● Yes SMS TABLE 11.2 PAGE 61
flame arrestors fitted at any other point	○ No Provide justification ● Yes SMS TABLE 11.2 PAGE 61

Landfill gas monitoring

Landfill gas monitoring must be provided at the installation. schedule 1 of LN337 of 2001 The following provides the regulatory specification for your landfill gas monitoring programme which must be justified by the landfill gas risk assessment you describe in your answers to section 1.2. You should use this section to demonstrate that documented systems, procedures and work instructions will be in place for all cells or areas generating landfill gas.

2.3.48 **Are 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

including, as appropriate

- *In-waste boreholes and wells.*
- *Perimeter boreholes.*
- *Location of monitoring installations*
- *Location of all in-waste, gas monitoring installations and perimeter boreholes*

○ No

Justification and/or date by which the system will be in place meeting the relevant standard which must be within 6 months of the issue of the permit

● Yes

SMS SECTION 12.2 PAGE 67

Construction quality assurance

- *Roles and responsibilities.*
- *Quality assurance principles.*
- *As built documentation.*
- *Validation report.*

○ No

Justification and/or date by which the system will be in place meeting the relevant standard which must be within 6 months of the issue of the permit

● Yes

SMS SECTION 12.7.1 PAGE 77

Monitoring measurements and schedules

including, as appropriate

- *Installation reference (In-waste, perimeter, gas flares, utilisation plants)*
- *Monitoring frequency*
- *Parameters (including trace components of landfill gas)*

○ No

Justification and/or date by which the system will be in place meeting the relevant standard which must be within 6 months of the issue of the permit

● Yes

SMS SECTION 12.3 PAGE 68

Monitoring techniques	*including, as appropriate* • *In-waste and perimeter boreholes.* • *Gas flares* • *Utilisation plants* • *Surface emissions* • *Aerial emissions* • *Off-site monitoring in the event of migration* ○ No Justification and/or date by by which the system will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 12.5 PAGE 74
Compliance limits and action plan	• *Control and trigger levels.* • *Procedures to be followed when levels of emissions exceed control and trigger levels* ○ No Justification and/or date by by which the system will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 12.4.2 PAGE 73
Data management and reporting procedures	• *Methods of recording and maintaining monitoring data.* • *Reporting routine data to the Malta Environment And Planning Authority* • *Annual reporting of monitoring data* • *Reporting in the event of a trigger event* • *Records of complaints* ○ No Justification and/or date by by which the system will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 12.6 PAGE 76
Do the documented systems, procedures and work instructions for landfill gas monitoring ensure that:	Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non- reactive wastes)** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked • *gas quality and quantity from each section of installation be identified and controlled* • *perimeter monitoring is adequate to cover the pathways of migration to identified off-site receptors* • *high permeability sections of the cap can be located* • *leaks in the gas collection system will be identified* • *volume of landfill gas sent to utilisation/disposal system* • *ingress of air into installation can be detected and located* • *sufficient balancing of the landfill gas collection system will be undertaken* • *performance of boreholes will be maintained to design specification* • *the concentration and composition of the trace gas components will be measured so that appropriate management can be undertaken* • *the monitoring from flares and utilisation plant sufficient to determine the quality and quantity of emissions* ○ No Justification and/or date by by which the system will be in place meeting the relevant standard which must be within 6 months of the issue of the permit ● Yes SMS SECTION 12.1 PAGE 67

In-waste landfill gas monitoring

2.3.49 **Is routine monitoring to be undertaken for:**

Methane
- ○ No
  Provide justification
- ● Yes
  SMS SECTION 12.3.1 PAGE 68

Carbon dioxide
- ○ No
  Provide justification
- ● Yes
  SMS SECTION 12.3.1 PAGE 68

Oxygen
- ○ No
  Provide justification
- ● Yes
  SMS SECTION 12.3.1 PAGE 68
  Provide proposed control level / trigger level

Temperature
- ○ No
  Provide justification
- ● Yes
  SMS SECTION 12.3.1 PAGE 68
  Provide proposed control level / trigger level

Carbon monoxide
- ○ No
  Provide justification
- ● Yes
  SMS SECTION 12.3.1 PAGE 68
  Provide proposed control level / trigger level

2.3.50 **Is annual monitoring being undertaken for trace component?**

Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non- reactive wastes)** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked

- ○ No
  Provide justification
- ● Yes
  SMS SECTION 12.3.2 PAGE 68

Monitoring of emissions from landfill gas flares and gas

engine exhausts

Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non- reactive wastes)** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked
After landfill gas has been abstracted and collected, it is either utilised via an engine or flared. These combustion processes release air emissions whose impacts on the environment may be assessed by emission measurements, modelling, and ambient air-quality monitoring.

Monitoring flare emissions

2.3.51 **Is flare emissions monitoring being undertaken?**

○ No

Provide justification

● Yes

SMS SECTION 12.3.4 PAGE 70

Monitoring utilisation system emissions

Applies if **Yes, there is a need to collect landfill gas** on page 63 is ticked

2.3.52 **Is landfill gas engine emissions monitoring being undertaken?**

○ No

Provide justification

● Yes

SMS TABLE 12.3 PAGE 71

Perimeter landfill gas monitoring – sub-surface emissions

Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non- reactive wastes)** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked
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. As a minimum, methane and carbon dioxide must be monitored. Other gases should be measured, as required, according to the composition of the waste deposited.
This section can be used for multiple sampling locations if appropriate, and should be reproduced for each location where the criteria are different.

<-- repeatable group starts here>

2.3.53 **Perimeter landfill gas monitoring details**

This question can be used for multiple monitoring locations if appropriate.

Monitoring point location/reference

DETAILS IN GRA ZW014/04

Methane

Control level, detection limit and accuracy

NA

Trigger level (for example, 1% above agreed background concentrations based on 20% of the lower explosion limit – LEL), detection limit and accuracy

NA

Frequency of monitoring

NA

Carbon dioxide	Monitoring point location/reference NA Control level, detection limit and accuracy NA Trigger level (for example, 1.5% above agreed background concentrations based on ~20% of the 8-hour British occupational exposure standard – OES), detection limit and accuracy NA Frequency of monitoring NA
Other	<-- repeatable group starts here> Name of parameter NA Monitoring point location/reference NA Control level, detection limit and accuracy NA Trigger level NA Frequency of monitoring NA repeatable group ends here --> repeatable group ends here -->

Landfill gas monitoring – surface emissions

Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non- reactive wastes)** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked

These are measurements of atmospheric emissions made at or just above the surface of an installation. There are two main types of measurements

- *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*
- *Surface flux measurements: these are measurements of emissions collected in open-bottomed containers (flux boxes) placed over particular surface positions so as to collect emitted emissions 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 (see Section 1), and are more easily related to climate change objectives which are expressed in terms of pollutant emission rates.

2.3.54 **Is surface monitoring being undertaken**

○ No

Provide justification

● Yes 11 REGULAR MONITORING POINTS ZW014/04

Perimeter landfill gas monitoring – aerial emissions

Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non- reactive wastes)** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked

These are measurements of ambient concentrations of atmospheric emissions 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 emissions being released towards receiving environments and local communities.*
- *To provide field-based estimates of the fluxes of fugitive emissions 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 emissions 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 concentrations and emission rates based on gas production modelling.*
- *To provide source term estimates for use in dispersion modelling of the impacts of landfill emissions on sensitive receptors.*

2.3.55 **Will you monitor the perimeter for methane or any other compound?**

○ No

Provide justification

● Yes

2.3.56 **Which compounds?**

■ Methane

■ Compounds other than methane

<-- repeatable group starts here>

CO_2
CO
H_2S
O_2
FURTHER DETAILS IN GRA

SMS SECTIONS 12.3.1 & 12.3.2 PAGE 68

2.3.57 **Details of perimeter aerial emission monitoring point**

Repeat this section for each monitoring point

Name of monitoring point (e.g., PAEMP 1, 2)

ALL POINTS ADDENDUM PAGE 10 ZW014/04

Parameter

ADDENDUM PAGE 10

Control level, detection limit and accuracy

ADDENDUM PAGE 10

Trigger level, detection limit and accuracy

ADDENDUM PAGE 10

Frequency of monitoring, e.g. continuous

ADDENDUM PAGE 10

2.3.58 **Give these details where perimeter-monitoring stations are in place**

height above ground for perimeter sampling e.g. 1.5 m

NA

proximity and direction of the boundary relative to monitoring station(s

NA

local topography relative to the monitoring station(s)

NA

repeatable group ends here -->

Receptor monitoring – aerial emissions

Applies if **an existing hazardous landfill?** on page 1 is ticked Applies if **an existing non-hazardous landfill?** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked

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.

2.3.59 **Are there reasons for undertaking new receptor monitoring based on the following**

complaints received

● No

Provide the justification and reference to the relevant section/page number of risk assessment

○ Yes

Reference to relevant section/page number of the risk assessment

proximity of sensitive environments

● No

Provide the justification and reference to the relevant section/page number of risk assessment

SMS SECTION 12.3.8 PAGE 72

○ Yes

ference to relevant section/page number of the risk assessment

	risk of exceeding recognised air-quality standards	● No Provide the justification and reference to the relevant section/page number of risk assessment GRA ○ Yes Reference to relevant section/page number of the risk assessment
	other installation-specific reasons	● No Provide the justification and reference to the relevant section/page number of risk assessment ○ Yes Reference to relevant section/page number of the risk assessment
2.3.60	**Do you have existing monitoring of air emissions in receptor situations?**	○ No Provide the justification and reference to the relevant section/page number of risk assessment ● Yes NO HAZARDS
2.3.61	**Will you undertake receptor monitoring?**	Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non- reactive wastes)** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked ● No Provide the justification and reference to the relevant section/page number of risk assessment SMS SECTION 12.3.8 PAGE 72 ● Yes compounds to be monitored AS ABOVE number and location of monitoring stations GRA frequency and duration of monitoring
2.3.62	**Specify the control and trigger levels which are proposed in order to decide when a change to the gas management plan is needed**	Description

Landfill gas monitoring action plan

2.3.63 **Do you have a landfill gas monitoring action plan which covers the elements listed below?**

Appropriate actions to be taken if	• *abnormal changes are observed in collected monitoring data* • *a reported event occurs, e.g. an odour complaint?* • *migration and release of landfill gas* • *impact to local air quality, e.g. sub-surface fire* ○ No Provide justification and/or date by which measures will be specified which must be within 6 months of the issue of the permit. ● Yes SMS SECTION 12.4.2 PAGE 73
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 the 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?* ○ No Provide justification and/or date by which measures will be specified which must be within 6 months of the issue of the permit. ● Yes SMS SECTION 12.4.2 PAGE 73
For each identified event do the emergency procedures define	• *the name of the person responsible for managing the emergency actions* • *emergency notification and contact procedures e.g. Authority 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)* • *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?* ● No Provide justification and/or date by which measures will be specified which must be within 6 months of the issue of the permit. ○ Yes

Installation infrastructure

2.3.64 **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.*

Description or document reference

SMS SECTION 13 PAGE 78/79

Sub-surface structures (excluding landfill containment engineering)

2.3.65 **For all subsurface pipework, sumps and storage vessels secondary containment or continuous leakage detection must be in place prior to the acceptance of any waste under the permit.**

Please indicate which method you will use

● Secondary containment

● Continuous leakage detection

2.3.66 **Is there an inspection and maintenance programme, e.g. pressure tests, leak tests, material thickness checks or CCTV which are completed for all such equipment and repeated at least every 3 years?**

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be prior to the acceptance of any waste under the permit

● Yes

SMS SECTION 13.3 PAGE 80

2.3.67 **Installation surfacing (excluding landfill containment engineering): has the following been applied to the areas of the installation listed below?**

For each area where why notthere 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 section below.
The design quality assurance and inspection and maintenance programme must cover, for each area,

- *capacities*
- *thicknesses*
- *falls*
- *material*
- *hydraulic conductivity*
- *strength/reinforcement*
- *resistance to chemical attack*
- *inspection and maintenance procedures and quality assurance of construction*

Waste reception area

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit

● Yes

~~SMS SECTION 13.4 PAGE 80~~

Waste storage area

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit

● Yes

SMS SECTION 13.4 PAGE 80

Fuel store area

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit

● Yes

SMS SECTION 13.4 PAGE 81

Other areas

Please tell us about other areas where there is potential for the activities to pollute the ground or controlled waters. You can repeat this question as many times as are required.

<-- repeatable group starts here>

Name of area:

CAR PARKING AREA

Confirm that it is surfaced and that the surfacing complies with each of the requirements

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of the issue of the permit

● Yes

repeatable group ends here -->

Bunds

SMS SECTION 13.5

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 section below within 6 months of the date of the issue of the permit.

<-- repeatable group starts here>

2.3.68 **Bunding details**

Name or location of tank

NA

Drawing reference

NA

2.3.69 **Type of tank**

Fuel storage
Waste oil from on site maintenance
Leachate storage tanks
Other

Please specify

NA

Is it impermeable and resistant to the stored materials?

◯ No

Justification and/or date by which it will be in place meeting the relevant standard

◯ Yes

Does it drain to a blind collection point and have no outlet (i.e. no drains or taps)?

◯ No

Justification and/or date by which they will be in place meeting the relevant standard

NA

◯ Yes

Is the pipework routed within bunded areas with no penetration of contained surfaces?	○ No Justification and/or date by which they will be in place meeting the relevant standard NA ○ Yes	
Is it designed to catch leaks from tanks or fittings?	○ No Justification and/or date by which they will be in place meeting the relevant standard NA ○ Yes	
Does it have a capacity of 110% of the largest tank or 25% of the total tankage, whichever is the greater?	○ No Justification and/or date by which they will be in place meeting the relevant standard NA ○ Yes	
Is it subject to regular visual inspection and any contents pumped out or otherwise removed under manual control after checking for contamination?	○ No Justification and/or date by which they will be in place meeting the relevant standard NA ○ Yes	
Where not frequently inspected, will it be fitted with a high-level probe and an alarm as appropriate?	○ No Justification and/or date by which they will be in place meeting the relevant standard NA ○ Yes	
Does it have fill points within the bund where possible or otherwise provide adequate containment?	○ No Justification and/or date by which they will be in place meeting the relevant standard NA ○ Yes	
Is there a routine programmed inspection of bunds, (normally visual but extending to water testing where structural integrity is in doubt)?	○ No Justification and/or date by which they will be in place meeting the relevant standard NA ○ Yes	

repeatable group ends here -->

Particulate matter management and monitoring

SMS SECTION 14.0	*This section provides the regulatory specification for your particulate matter management and monitoring programme.*

2.3.70 **Is particulate matter management required at the installation?**

○ No

Justification and reference to the relevant section/page of the particulate matter risk assessment

● Yes

SMS SECTION 14.0 PAGE 84

Are all appropriate measures in place to minimise any particulate matter escaping beyond the installation boundary?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 14.1 PAGE 84

Are the high particulate matter risk waste streams (as identified in the risk assessment) clearly specified?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 14.1.7 PAGE 84

Are the criteria (e.g. wind speed and direction) for closing the installation to the high particulate matter risk waste streams clearly specified?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 17.3.16 PAGE 99

For those waste streams identified as a high litter risk in the risk assessment are there measures requiring sources to have it appropriately treated or bagged?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 17.3.17 PAGE 100

Are the criteria for using an emergency tipping area clearly identified?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 17.3.9 PAGE 99

2.3.71 **Is particulate matter monitoring required at the installation?**

○ No

Justification and reference to the relevant section/page of the particulate matter risk assessment

● Yes

SMS SECTION 14.2 PAGE 85

What types of particulate matter are being generated and emitted?
Repeat this section for each type of particulate matter

<-- repeatable group starts here>

Particulate matter being generated and emitted

DUST

Monitoring method

VISUAL/QUANTITATIVE

repeatable group ends here -->

Are measures in place to monitor particulate matter within the installation boundary at the hazard location for particulate matter identified in the risk assessment?

- ○ No
  provide justification and reference to the relevant page/section of the particulate matter Risk Assessment
- ● Yes
  State frequency of monitoring and provide justification and reference to the relevant section/page of the particulate matter risk assessment

SMS SECTION 14.2.1/14.2.2 PAGE 85

Are measures in place to monitor particulate matter escaping the installation boundary?

- ○ No
  provide justification and reference to the relevant page/section of the particulate matter Risk Assessment
- ● Yes
  State frequency of monitoring and provide justification and reference to the relevant section/page of the particulate matter risk assessment

Are measures in place to monitor particulate matter at specific locations, for high sensitivity receptors identified in the particulate matter risk assessment?

- ○ No
  provide justification and reference to the relevant page/section of the particulate matter Risk Assessment
- ● Yes
  State frequency of monitoring and provide justification and reference to the relevant section/page of the particulate matter risk assessment

2.3.72 **Details of particulate matter monitoring points**

Repeat this section for each monitoring point

<-- repeatable group starts here>

Name of monitoring point

Determinand

NA

Frequency of monitoring

NA

Units and accuracy

NA

Control level

NA

repeatable group ends here -->

Odour management and monitoring

This section provides the regulatory specification for your odour monitoring programme.

2.3.73 **Is odour management required at the installation?**

◯ No

Justification and reference to the relevant section/page of the odour risk assessment

● Yes

◯

Are all appropriate measures in place to minimise any odour escaping beyond the installation boundary?

◯ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 15.3 PAGE 88

Are the high odour risk waste streams (as identified in the risk assessment) clearly specified?

◯ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 15.2 PAGE 87

Are the criteria (e.g. wind speed and direction) for closing the installation to the high odour risk waste streams clearly specified?

● No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

○ Yes

For those waste streams identified as a high odour risk in the risk assessment are there measures requiring sources to have it appropriately treated?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 15.3.13 PAGE 89

Are the criteria for using an emergency tipping area clearly identified?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 15.3.15 PAGE 90

2.3.74 **Is odour monitoring required at the installation?**

○ No

Justification and reference to the relevant section/page of the odour risk assessment

● Yes

SMS SECTION 15.4.2 PAGE 91

2.3.75

○

○

Are measures in place to monitor odour within the installation boundary at the hazard location for odour identified in the risk assessment?

○ No

Justification and reference to the relevant page/section of the odour risk assessment

● Yes

State frequency of monitoring and provide justification and reference to the relevant section/page of the odour risk assessment

REGULAR/WEEKLY

Are measures in place to monitor odour escaping the installation boundary?

○ No

Justification and reference to the relevant page/section of the odour risk assessment

● Yes

State frequency of monitoring and provide justification and reference to the relevant section/page of the odour risk assessment

REGULAR/WEEKLY

Are measures in place to monitor odour at specific locations, for high sensitivity receptors identified in the odour risk assessment?

○ No

Justification and reference to the relevant page/section of the odour risk assessment

● Yes

State frequency of monitoring and provide justification and reference to the relevant section/page of the odour risk assessment

REGULAR/WEEKLY SMS SECTION 15.4.2 PAGE 91

2.3.75 **Details of odour monitoring points**

Repeat this section for each monitoring point

<-- repeatable group starts here>

Name of monitoring point

NA

Determinand

NA

Frequency of monitoring

NA

Units and accuracy

NA

Control level

NA

repeatable group ends here -->

Dirt and mud management and monitoring

This section provides the regulatory specification for your dirt and mud management monitoring programme.

2.3.76 **Is dirt and mud management required at the installation?**

○ No

Justification and reference to the relevant section/page of the dirt and mud risk assessment

● Yes

SMS SECTION 16.1 PAGE 94

Are all appropriate measures in place to minimise dirt and mud being carried beyond the installation boundary?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 16.3 PAGE 94

In the event that dirt and mud is carried beyond the installation boundary are measures in place to ensure that the dirt and mud is cleared as soon as practicable

i.e. without delay?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 16.3 PAGE 95

Are the criteria (e.g. mud on a highway) for closing the installation to the acceptance of waste clearly specified?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 16.5 PAGE 95

Are measures in place to ensure that the priorities for clearing dirt and mud are related to the meteorological conditions and the high sensitivity receptors identified in the risk assessment?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 16.5 PAGE 95

2.3.77 **Dirt and mud clearance**

What is the maximum period for clearing dirt and mud accumulations within the installation?
Specify the time period and provide the justification and reference to the relevant page/section of the Dirt and mud Risk Assessment

WEEKLY / REGULARLY SMS SECTION 16.3.5 PAGE 95

What is the maximum period for clearing dirt and mud accumulations outside the boundary of the installation?
Specify the time period and provide the justification and reference to the relevant page/section of the Dirt and mud Risk Assessment
WEEKLY / REGULARLY SMS SECTION 16.3.5 PAGE 95

2.3.78 **Is dirt and mud monitoring required at the installation?**

◯ No

Justification and reference to the relevant section/page of the dirt and mud risk assessment

● Yes

SMS SECTION 16.4 PAGE 95

Are measures in place to monitor dirt and mud within the installation boundary at the locations identified in the risk assessment?

◯ No

provide justification and reference to the relevant page/section of the dirt and mud Risk Assessment

● Yes

State frequency of monitoring and provide justification and reference to the relevant section/page of the dirt and mud risk assessment

DAILY INSPECTIONS

Are measures in place to monitor dirt and mud being carried outside the installation

boundary?

○ No

provide justification and reference to the relevant page/section of the dirt and mud Risk Assessment

● Yes

State frequency of monitoring and provide justification and reference to the relevant section/page of the dirt and mud risk assessment

DAILY

Are measures in place to monitor dirt and mud at specific locations identified as high sensitivity receptors identified in the dirt and mud risk assessment?

○ No

provide justification and reference to the relevant page/section of the dirt and mud Risk Assessment

● Yes

State frequency of monitoring and provide justification and reference to the relevant section/page of the dirt and mud risk assessment

DAILY

Litter management and monitoring

This section provides the regulatory specification for your litter management and monitoring programme.

2.3.79 **Is litter management required at the installation?**

○ No

Justification and reference to the relevant section/page of the litter risk assessment

● Yes

SMS SECTION 17.0 PAGE 97

Are all appropriate measures in place to minimise litter escaping beyond the installation boundary?

No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 17.3 PAGE 97

In the event that litter does escape beyond the installation boundary are measures in place to ensure that the litter is retrieved as soon as practicable i.e. without delay?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 17.3.18 PAGE 100

Are the criteria (e.g. wind speed and direction) for closing the installation to the high

litter risk waste streams clearly specified?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 17.3.16 PAGE 99

Are the high litter risk waste streams (as identified in the risk assessment) clearly specified?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 17.2 PAGE 97

For those waste streams identified as a high litter risk in the risk assessment are there measures requiring sources to have it appropriately treated, bagged or baled?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 17.3.17 PAGE 100

Are the criteria for using an emergency tipping area clearly identified?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 17.3.9 PAGE 99

Are measures in place to ensure that the priorities for clearing litter are related to the meteorological conditions and the high sensitivity receptors identified in the risk assessment?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 17.2 PAGE 97

2.3.80 **Litter collection**

What is the maximum period for clearing litter accumulations within the installation? Specify the time period and provide the justification and reference to the relevant page/section of the litter Risk Assessment

REGULAR (SMS SECTION 17.3.18)

What is the maximum period for clearing litter escaping the boundary installation? Specify the time period and provide the justification and reference to the relevant page/section of the litter Risk Assessment

2.38081 **Is litter monitoring required at the installation?**

○ No

Justification and reference to the relevant section/page of the litter risk assessment

● Yes

SMS SECTION 17.4 PAGE 100

Are measures in place to monitor litter within the installation boundary at the hazard

location for litter identified in the risk assessment?

○ No

provide justification and reference to the relevant page/section of the litter Risk Assessment

● Yes

State frequency of monitoring and provide justification and reference to the relevant section/page of the litter risk assessment

DAILY (SMS SECTION 17.4.2)

Are measures in place to monitor litter escaping outside the installation boundary?

○ No

provide justification and reference to the relevant page/section of the litter Risk Assessment

● Yes

State frequency of monitoring and provide justification and reference to the relevant section/page of the litter risk assessment

DAILY

Are measures in place to monitor litter at specific locations, for high sensitivity receptors identified in the litter risk assessment?

○ No

provide justification and reference to the relevant page/section of the litter matter Risk Assessment

● Yes

State frequency of monitoring and provide justification and reference to the relevant section/page of the litter risk assessment

DAILY

Birds, vermin and insect management

This section provides the regulatory specification for your bird, vermin and insect management and monitoring programme.

2.382 **Is bird, vermin and insect management required at the installation?**

◯ No

Justification and reference to the relevant section/page of the bird, vermin and insect risk assessment

● Yes

SMS SECTION 18.1 PAGE 102

Are all appropriate measures (e.g. bird deterrent techniques, physical barriers) in place to minimise the presence of birds, vermin and insects at the installation?

◯ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 18.3.2 – 18.3.10 PAGE 103

In the event that birds, vermin and insects are causing annoyance at the installation are measures in place to manage their presence as soon as practicable i.e. without

delay?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 18.5 PAGE 105

In the event that birds, vermin and insects are causing annoyance outside the boundary of the installation are measures in place to manage their presence as soon as practicable i.e. without delay?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 18.5 PAGE 105

Are the criteria for closing the installation to the high birds, vermin and insects risk waste streams clearly specified?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 18.3.4 PAGE 103

Are the high birds, vermin and insects risk waste streams (as identified in the risk assessment) clearly specified?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 18.2 PAGE 102

For those waste streams identified as a high birds, vermin and insects risk in the risk assessment are the sources required to take appropriate measures?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 18.3.4 PAGE 103

Are measures in place to ensure that the priorities for birds, vermin and insects management are related to the meteorological conditions and the high sensitivity receptors identified in the risk assessment?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 18.2 PAGE 102

2.3.83 **Bird, vermin and insect control**

How often are visual inspections of the installation carried out for the presence of birds, vermin and insects?

Specify the frequency and provide the justification and reference to the relevant page/ section of the bird, vermin and insect Risk Assessment

WEEKLY (SMS SECTION 18.4) PAGE 104

Are measures in place to visually inspect at specific locations, for high sensitivity

receptors identified in the Bird, vermin and insect risk assessment?
Specify the time period and provide the justification and reference to the relevant page/section of the bird, vermin and insect Risk Assessment

SMS SECTION 18.4.1 PAGE 104

How often do pest control contractors visit the installation?

Specify the frequency and provide the justification and reference to the relevant page/ section of the bird, vermin and insect Risk Assessment

QUARTERLY (SMS SECTION 18.4.2)

What is the maximum period for taking measures to control birds, vermin and insects following identification of nuisance within the boundary of the installation?
Specify the time period and provide the justification and reference to the relevant page/section of the bird, vermin and insect Risk Assessment

24 HOURS (SMS SECTION 18.5)

What is the maximum period for taking measures to control birds, vermin and insects following identification of nuisance outside the boundary of the installation?
Specify the time period and provide the justification and reference to the relevant page/section of the bird, vermin and insect Risk Assessment

24 HOURS (SMS SECTION 18.5)

Noise and vibration management and monitoring

This section provides the regulatory specification for your noise and vibration management and monitoring programme.

2.3.84 **Is noise and vibration management required at the installation?**

○ No

Justification and reference to the relevant section/page of the noise and vibration risk assessment

● Yes

SMS SECTION 19.1 PAGE 107

2.3.85 **Is noise and vibration management undertaken** No

Justification and reference to the relevant section/page of the noise and vibration risk assessment

● Yes

SMS SECTION 19.3 PAGE 107

Are all appropriate measures in place to minimise noise and vibration escaping beyond the installation boundary?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 19.3.4 PAGE 108

In the event that noise and vibration is perceived beyond the installation boundary are measures in place to ensure that remedial action is taken as soon as practicable

i.e. without delay?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 19.3.2 PAGE 107

Are measures in place to ensure that the remedial action is related to the meteorological conditions (e.g. wind direction) and the high sensitivity receptors identified in the risk assessment?

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of the issue of the permit

● Yes

SMS SECTION 19.4.1 PAGE 109

2.3.86 **Is noise and vibration monitoring required at the installation?**

○ No

Justification and reference to the relevant section/page of the noise and vibration risk assessment

● Yes

SMS SECTION 19.4 PAGE 109

2.3.87 **Is noise and vibration monitoring undertaken ?**

○ No

Justification and reference to the relevant section/page of the noise and vibration risk assessment

● Yes

State frequency of monitoring and provide justification and reference to the relevant section/page of the noise and vibration risk assessment

SMS SECTION 19.4.3 + 19.4.2 PAGE 109/110

Are measures in place to monitor noise and vibration within the installation boundary?

○ No

provide justification and reference to the relevant page/section of the noise and vibration risk assessment

● Yes

State frequency of monitoring and provide justification and reference to the relevant section/page of the noise and vibration risk assessment

Are measures in place to monitor noise and vibration at the installation boundary?

○ No

provide justification and reference to the relevant page/section of the noise and vibration risk assessment

● Yes

State frequency of monitoring and provide justification and reference to the relevant section/page of the noise and vibration risk assessment

REGULAR SMS SECTION 19.4.2 + 19.4.3 PAGE 109/110

Are measures in place to monitor noise and vibration at specific locations, for high sensitivity receptors identified in the noise and vibration risk assessment?

○ No

provide justification and reference to the relevant page/section of the noise and vibration risk assessment

● Yes

State frequency of monitoring and provide justification and reference to the relevant section/page of the noise and vibration risk assessment

SMS SECTION 19.4.2 + 19.4.3 PAGE 109/110

2.3.88 **Details of noise and vibration monitoring points**

Repeat this section for each monitoring point

<-- repeatable group starts here>

Name of monitoring point

ALL POINTS ON DRAWING ZW008/04

Determinand

NOT YET DETERMINED

Frequency of monitoring

NOT YET DETERMINED

Units and accuracy

NOT YET DETERMINED

Control levels

NOT YET DETERMINED

repeatable group ends here -->

2.4 Other assessments

Raw and auxiliary materials selection and minimisation

SMS SECTION 20.0

This section look s at the selection and minimisation of the raw and auxiliary materials used in the operation of the installation. It is understood however that nearly all of these materials are required to minimise the adverse effects on the environment and therefore the minimisation of them may be inappropriate. It is therefore suggested that, although consideration should be given to minimising the use of materials required for abatement techniques, the operator should ensure that the integrity and ability of the abatement systems are not compromised.

2.4.1 **Raw materials**

Use this section to supply a list of the principal materials used, and any others that have the potential for significant environmental impact, for example vermin control, fuels,

leachate treatment and raw materials required for engineering. Repeat for each material used.

<-- repeatable group starts here>

Raw material/function

NA

Chemical nature/composition

NA

Addition rate

NA

Fate

% to product

NA

% to water

NA

% to sewer

NA

% to waste/land

NA

% to air

NA

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

NA

Could the material be a significant accident risk by virtue of nature or quantity stored?

NA

repeatable group ends here -->

Energy

SMS SECTION 21.0

The principle that energy should be used efficiently is only a requirement for landfills covered by Section 5.2(1)(a) of Schedule 1 to the IPPC Regulations. The landfill sector is not considered to be a significant energy user and the opportunity for significant energy efficiency will be limited. However, an operator 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 installation, the operator should also provide this information. An example of the format in which this information should be presented is given in below.

2.4.2 **Annual energy consumption**

Table 1

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)

2.4.3 **Energy efficiency measures**

What energy efficiency techniques are applicable to the activities authorised by the permit?

- *List those which are applicable to the activities but have not yet been implemented.*
- *State the CO2 savings achievable by that technique over the technique or the installation's lifetime.*

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

Add rows If necessary

Energy efficiency measure	CO2 savings (tonnes) Annual

Accidents and their consequences

2.4.4 **Accident management plan**

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

Flooding

SMS SECTION 22.2

Likelihood of occurrence

LOW

Consequences of occurrence

FLOODING OF TIPPING AREA

Actions taken or proposed to minimise the chances of it happening

SMS SECTION 22 2 PAGE 116

Actions planned if the event does occur

SMS SECTION 22.2.1 PAGE 116

Subsidence

SMS SECTION 22.5

Applies if **a new hazardous landfill?** on page 1 is ticked Applies if **a new non-hazardous landfill?** on page 1 is ticked Applies if **a new inert landfill?** on page 1 is ticked

Likelihood of occurrence

LOW

Consequences of occurrence

MAJOR BREACH OF INSTALLATION LINER

Actions taken or proposed to minimise the chances of it happening

SMS SECTION 22 5 2 PAGE 121

Actions planned if the event does occur

SMS SECTION 22 5 3 PAGE 121

Landslides

SMS SECTION 22.5

Applies if **a new hazardous landfill?** on page 1 is ticked Applies if **a new non- hazardous landfill?** on page 1 is ticked Applies if **a new inert landfill?** on page 1 is ticked

Likelihood of occurrence

LOW

Consequences of occurrence

Actions taken or proposed to minimise the chances of it happening

Actions planned if the event does occur

Fires

SMS SECTION 22.3

Likelihood of occurrence

Consequences of occurrence

DAMAGE TO INFRASTRUCTURE / PERSONS

Actions taken or proposed to minimise the chances of it happening

SMS SECTIONS 22 3 2-22 3 10 PAGES 117-118

Actions planned if the event does occur

SMS SECTION 22 3 12 PAGE 118

Explosions

SMS SECTION 22.4

Likelihood of occurrence

LOW

Consequences of occurrence

DAMAGE TO INFRASTRUCTURE / PERSONS

Actions taken or proposed to minimise the chances of it happening

SMS SECTION 22 4 1 PAGE 120

Actions planned if the event does occur

SMS SECTION 22.4.2 PAGE 120

Major breach of installation liner

SMS SECTION 22.5

Likelihood of occurrence

LOW

Consequences of occurrence

HARM TO ENVIRONMENT

Actions taken or proposed to minimise the chances of it happening

SMS SECTIONS 22 5 1 + 22 5 2 PAGE 121

Actions planned if the event does occur

SMS SECTION 22 5 3 PAGE 121

Others (please specify)

SMS SECTION 22.6

Repeat this section as required

<-- repeatable group starts here>

Type of accident or abnormal release

SPILLAGE & LEAKAGE

Likelihood of occurrence

LOW

Consequences of occurrence

CONTAMINATION

Actions taken or proposed to minimise the chances of it happening

SMS SECTIONS 22 6 1-22 6 8 PAGES 123-4

Actions planned if the event does occur

SMS SECTION 22.6.9 PAGE 124

repeatable group ends here →

2.4.5 **Which of the above do you consider to pose the most critical risks to the environment from your installation?**

Name of critical risk

BREACH OF INSTALLATION LINER

Meteorological monitoring plan

Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non- reactive wastes)** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked

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*
- *any special factors causing particular events e.g. wind-raised dust.*

2.4.6 **Does the meteorological monitoring plan specify the following measurements and frequencies**

Volume of precipitation

- *Operational phase: daily*
- *Aftercare phase: daily, added to monthly values*

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of date of issue of the permit

● Yes

SMS SECTION 23.4 PAGE 126

Temperature

- *Operational phase: daily*
- *Aftercare phase: monthly average*

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of date of issue of the permit

● Yes

SMS SECTION 23.4 PAGE 126

Direction and force of prevailing wind

- *Operational phase: daily*

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of date of issue of the permit

● Yes

SMS SECTION 23.4 PAGE 126

Evaporation

- *Operational phase: daily*
- *Aftercare phase: daily, added to monthly values*

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of date of issue of the permit

● Yes

SMS SECTION 23.4 PAGE 126

Atmospheric humidity

- *Operational phase: daily*
- *Aftercare phase: monthly average*

○ No

Justification and/or date by which they will be in place meeting the relevant standard which must be within 3 months of date of issue of the permit

● Yes

SMS SECTION 23.4 PAGE 126

2.4.7 **How does the averaging period relate to the determinands being monitored and their interpretation? i.e. rainfall and wind direction would require different averaging periods**

Response or document reference

SMS SECTION 23.

Meteorological monitoring points

2.4.8 **For each monitoring point provide the following information**

<-- repeatable group starts here>

MONITORING POINTS NOT YET ESTABLISHED

Meteorological monitoring point reference number	Response or document reference
Is data obtained from a local meteorological station or from site monitoring?	◯ Local meteorological station NOT YET APPLICABLE ◯ Site monitoring
Is this location the same as where monitoring is undertaken?	◯ No ◯ Yes NOT YET APPLICABLE
Specify the height above ground at which meteorological data are measured?	◯ Response or document reference
Is the measuring equipment mounted on the side or top of a building?	◯ Yes Describe the monitoring position relative to the supporting building and the extension above it Response or document reference Describe the relative position of all buildings of comparable height within 200m of the monitoring location Response or document reference
NOT YET APPLICABLE	
Describe the topography adjacent to the monitoring location; include a description of land relief relative to the monitoring position	Response or document reference
Describe the position of the monitoring location relative to any boundary monitoring	Response or document reference NOT YET APPLICABLE
Describe the position of the monitoring location relative to identified sensitive receptors	Response or document reference NOT YET APPLICABLE repeatable group ends here -->

Improvement plan

2.4.9	**Give a summary of the improvement plans at the time of your application**	*This section should be kept as brief as possible, typically a paragraph for each, while conveying a reasonable summary of the improvements planned. It is your opportunity to describe what you are doing to protect the environment, how well you are doing and any improvements you intend to make. You are advised to complete this section after the rest of the application as you will then know what you are summarising* *Repeat this section for each action.* <-- repeatable group starts here> Action Date repeatable group ends here -->

Landfill body monitoring

You are required to record the structure and composition of the landfill body annually.

2.4.10 **Are documented systems, procedures and work instructions in place to record the structure and composition of the landfill body using the following parameters?**

Annual recording of the structure and composition of the landfill body?	○ No ● Yes	Justification and/or date by which they will be in place meeting the relevant standard which must be within 12 months of the issue of the permit SMS SECTION 24.1 PAGE 128
Surface occupied by waste	○ No ● Yes	Justification and/or date by which they will be in place meeting the relevant standard which must be within 12 months of the issue of the permit SMS SECTION 24.1.1 PAGE 128
Volume and composition of the waste	○ No ○ Yes	Justification and/or date by which they will be in place meeting the relevant standard which must be within 12 months of the issue of the permit SMS SECTION 24.1.3 PAGE 128
Methods of depositing	○ No ● Yes	Justification and/or date by which they will be in place meeting the relevant standard which must be within 12 months of the issue of the permit SMS SECTION 24.1.4 PAGE 128
Time and duration of depositing	○ No ● Yes	Justification and/or date by which they will be in place meeting the relevant standard which must be within 12 months of the issue of the permit SMS SECTION 24.1.5 PAGE 128
Calculation of remaining capacity	○ No ● Yes	Justification and/or date by which they will be in place meeting the relevant standard which must be within 12 months of the issue of the permit SMS SECTION 24.1.6 PAGE 128
Annual surveying of the settling behaviour of the landfill during the operating and after-care phases	○ No ● Yes	Justification and/or date by which they will be in place meeting the relevant standard which must be within 12 months of the issue of the permit SMS SECTION 24.1.7 PAGE 128

2.4.11 **Specify any other techniques**

Technique

NA

2.5 Closure, restoration, aftercare and completion

SMS SECTION 25.0

An installation or part of it may only be considered as definitively closed after the Authority has carried out a final on-site inspection, has assessed all the reports submitted by the Operator and has communicated to the Operator its approval for closure. This shall not in any way reduce the responsibility of the Operator under the conditions of the Permit which will continue until the surrender of the permit has been accepted by the Authority. After an installation has been definitively closed, the Operator shall continue to be responsible for the maintenance, monitoring and control in the aftercare phase for as long as may be required by the Authority, taking into account the time during which the installation could present hazards. Closure should be considered at the design stage of any new or existing development to increase the ease and security of the closure.
The Operator's Closure, restoration, aftercare and completion plan will need to cover the proposed measures, upon definite closure, to avoid any pollution risk and return the installation to a satisfactory state. This includes measures relating to the design and construction of the installation .

2.5.1 **How often will you monitor waste levels in each cell?**

Frequency

2.5.2 **Specify the accuracy of the monitoring method**

Vertical measurements in mm

SURVEY TECHNIQUE BY THEODOLITE +- 5 mm/km

Horizontal measurements in mm

SURVEY TECHNIQUE BY THEODOLITE +- 5 mm/km

2.5.3 **Specify the frequency that the result will be reported to the Authority**

Frequency

EVERY SIX MONTHS

Restoration and aftercare

SMS SECTION 25.3

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

2.5.4 **Are procedures in place for existing closed cells and existing operational cells, and will they be in place for new cells, to ensure that:**

final pre-settlement waste levels are achieved and are not exceeded?	○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of date of issue of the permit ● Yes
all above ground management systems are adequately protected from damage (including vandalism) to ensure their continued suitability for use throughout the aftercare phase?	○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of date of issue of the permit ● Yes
all environmental management and monitoring infrastructure is maintained (and where necessary replaced) to ensure their continued suitability for use throughout the aftercare phase?	○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of date of issue of the permit ● Yes
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?	○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of date of issue of the permit ● Yes
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?	Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non- reactive wastes)** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked ○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of date of issue of the permit ● Yes
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?	Applies if **Arrangements needed** on page 9 is ticked Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non-reactive wastes)** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked ○ No Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of date of issue of the permit ● Yes REF. DOC. 'PROJECT DESIGN FOR THE CLOSURE OF TA' ZWEJRA LANDFILL'

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, as appropriate?	○ No ● Yes	Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of date of issue of the permit REF. DOC. 'PROJECT DESIGN FOR THE CLOSURE OF TA' ZWEJRA LANDFILL'
the proposed after-use and restoration does not conflict with access requirements for monitoring and maintenance of environmental management and monitoring systems, for example the required re-drilling of landfill gas extraction boreholes?	○ No ○ Yes	Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of date of issue of the permit N/A
post-closure settlement surveys are carried out?	○ No ● Yes	Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of date of issue of the permit
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 at the installation?	○ No ○ Yes	Justification and/or date by which they will be in place meeting the relevant standard which must be within 6 months of date of issue of the permit NOT YET AVAILABLE

2.5.5 What features will you monitor to prove that you are ready to go into closure

Refer to Article 9 (g) of the Landfill Regulations

3 Emission benchmarks

TO BE PROVIDED AT A LATER DATE

3.1 Emissions inventory and benchmark comparison

In accordance with the development programme for your installation and as described in the Regulatory Specification in Section 2 of this form you must now identify the emissions you are expecting to release from point sources and from fugitive sources. These values will be included within permit conditions. You must also identify when the measures you are proposing will be in place. This should also take account of relevant improvement programmes to reduce emissions agreed at the time of the determination of your application, for example, emission standards for gas engines will depend on the age of the engine and replacement of an engine will lead to reduced emissions.
The emissions limits in this section must be expressed in terms of annual capacity limits of the relevant emission to the receiving medium. These can be based either:

- *on an estimate of the relevant concentration limit x volume emitted annually;*
  or
- *on a more accurate assessment based on the operating profile of the relevant emissions.*

The emission levels you specify must be supported by and consistent with the relevant assessments you describe in Section 1, and with the regulatory specifications for control measures and monitoring that you set out in section 2.

Emissions to sewer

Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non- reactive wastes)** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked

3.1.1 Emission limits into sewer

<-- repeatable group starts here>

Sewer emission monitoring point number, e.g.S1

Determinand

Frequency monitored

Units and accuracy

Control level

repeatable group ends here -->

Emissions to surface water

3.1.2 **Emission limits into surface water**

<-- repeatable group starts here>

Surface water emissions monitoring point number, e.g. W1

Determinand

Frequency monitored

Units and accuracy

Control level

repeatable group ends here -->

Emissions to air

Applies if **Hazardous landfill** on page 1 is ticked Applies if **Non-hazardous landfill (this includes sites which will also accept hazardous stabilised non- reactive wastes)** on page 1 is ticked Applies if **an existing inert landfill?** on page 1 is ticked Applies if **Yes, there is a need to collect landfill gas** on page 63 is ticked

Gas engines

Applies if **Landfill gas utilisation** on page 63 is ticked

Repeat this section for each engine unless emissions are envisaged to be identical for each one.

<-- repeatable group starts here>

Identification of gas engine

3.1.3 **NOx emissions**

Best practice for minimisation: combustion control

Frequency of monitoring

Proposed emission figures including units*Can be drawn from existing data or manufacturer's specification if not available*

Proposed trigger levels including units

3.1.4 **SOx emissions**

Best practice for minimisation: pre-stripping

Frequency of monitoring

Proposed emission figures including units *Can be drawn from existing data or manufacturer's specification if not available*

Proposed trigger levels including units

3.1.5 **HCl emissions**

Best practice for minimisation: pre-stripping

Frequency of monitoring

Proposed emission figures including units *Can be drawn from existing data or manufacturer's specification if not available*

Proposed trigger levels including units

3.1.6 **CO emissions**

Best practice for minimisation: combustion control

Frequency of monitoring

Proposed emission figures including units *Can be drawn from existing data or manufacturer's specification if not available*

Proposed trigger levels including units

3.1.7 **CO_2 emissions**

Frequency of monitoring

Proposed emission figures including units *Can be drawn from existing data or manufacturer's specification if not available*

Proposed trigger levels including units

3.1.8 **Total VOC emissions**

Best practice for minimisation: combustion control

Frequency of monitoring

Proposed emission figures including units *Can be drawn from existing data or manufacturer's specification if not available*

Proposed trigger levels including units

3.1.9 **Polychlorinated dibenzodioxins & polychlorinated dibenzofurans**

Best practice for minimisation: combustion control

Frequency of monitoring

Proposed emission figures including units

Proposed trigger levels including units

3.1.10 **Noise emissions**

Best practice for minimisation: baffles

Frequency of monitoring

Proposed emission figures including units*Can be drawn from existing data or manufacturer's specification if not available*

Proposed trigger levels including units

repeatable group ends here -->

Gas flares

Applies if **Landfill gas flaring** on page 63 is ticked

Repeat this section for each gas flare.

<-- repeatable group starts here>

Identification of gas flare

3.1.11 **NOx emissions**

Best practice for minimisation: combustion control

Frequency of monitoring

Proposed emission figures including units*Can be drawn from existing data or manufacturer's specification if not available*

Proposed trigger levels including units

3.1.12 **SOx emissions**

Best practice for minimisation: pre-stripping

Frequency of monitoring

Proposed emission figures including units*Can be drawn from existing data or manufacturer's specification if not available*

Proposed trigger levels including units

3.1.13 **HCl emissions**

Best practice for minimisation: pre-stripping

Frequency of monitoring

Proposed emission figures including units *Can be drawn from existing data or manufacturer's specification if not available*

Proposed trigger levels including units

3.1.14 **CO emissions**

Best practice for minimisation: combustion control

Frequency of monitoring

Proposed emission figures including units *Can be drawn from existing data or manufacturer's specification if not available*

Proposed trigger levels including units

3.1.15 **CO_2 emissions**

Frequency of monitoring

Proposed emission figures including units *Can be drawn from existing data or manufacturer's specification if not available*

Proposed trigger levels including units

3.1.16 **Total VOC emissions**

Best practice for minimisation: combustion control

Frequency of monitoring

Proposed emission figures including units *Can be drawn from existing data or manufacturer's specification if not available*

Proposed trigger levels including units

3.1.17 **Polychlorinated dibenzodioxins & polychlorinated dibenzofurans**

Best practice for minimisation: combustion control

Frequency of monitoring

Proposed emission figures including units *Can be drawn from existing data or manufacturer's specification if not available*

Proposed trigger levels including units

3.1.18 **Noise emissions**

Best practice for minimisation: baffles

Frequency of monitoring

Proposed emission figures including units *Can be drawn from existing data or manufacturer's specification if not available*

Proposed trigger levels including units

repeatable group ends here -->

4 Non-technical summary and management systems overview

4.0.1 **Please include your non-technical summary here**

This section should be kept as brief as possible while conveying a reasonable summary of the activities. It is your opportunity to tell the reader how well you are doing and the improvements you intend to make. You are advised to complete this section after the rest of the Application as you will then know what you are summarising.

Summary

The current application is for an integrated pollution prevention and control permit related to the operation of a non-hazardous waste management facility located at Ta' Zwejra L/O Maghtab.
The proposed project comprises the development of an engineered facility for the disposal of non-hazardous wastes generated on the Maltese Islands during a period of 18 months in an area measuring some 41,000 square metres. The estimated volume capacity is 500,000 cubic metres following the post settlement of wastes. With an 'after-compaction' density of 0.8 tonnes per cubic metre and with the current rate of waste input, the facility should accommodate 400,000 tonnes of wastes in a time frame of 18 months.

The facility will be developed in three phases consisting of 3 hydraulically independent cells. All the cells will be built as a typical, standard design fully contained engineered landfill on the basis of already developed and approved techniques through all EU Member States. Each cell will have its own leachate collection/extraction system and they will be physically connected to form an integral common base of the landfill. The facility will also be equipped with a gas extraction and utilization system; this will be connected to a central gas management facility that will be installed as part of the aerial emissions control project on the former Maghtab waste disposal site.

The engineering specifications for this facility have been derived from the results of hydrogeological, landfill gas and stability risk assessments to ensure that operations at the installation would not result in an adverse effects on the surrounding environment and thus comply with the requirements of the Waste Management (Landfill) Regulations, 2002.

4.1 Management techniques

The holder of the permit must be a 'Fit and proper person'. This includes a component whereby the management of the specified waste management activity that is or is to be carried out is in the hands of a technically competent person. The qualifications and experience that demonstrate technical competence. The Landfill Regulations

2002 have introduced the requirement for ongoing technical and professional development for both the technically competent person and staff employed at the installation.
In addition to this requirement, an effective system of management is a key technique for ensuring that all appropriate pollution prevention and control techniques are delivered reliably and on an integrated basis. The Authority strongly supports the operation of environmental management systems (EMSs). The Authority 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 strongly supported by the Regulator. 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 Malta Standards Authority 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 IPPC that is primarily required in this application.

4.1.1 **Provide a diagram showing your management structure. Other than for the technically competent management of the site – show posts, rather than names.**

Document reference

ADDENDUM SECTION 10.0 PAGE 26

Environmental management system

The Authority will recognise an Environmental Management System (EMS) if:
- *it is certified to ISO 14001 standard or registered to EU Eco-Management and Audit Scheme (EMAS); and*
- *certification has been carried out by a accredited organisation and*
- *the certification or registration covers the whole of the Installation included in this Application and all of the elements listed below*

4.1.2 **Does your environmental management system meet of the above criteria?**

● No

Description of site management

If you are not certified or registered or
if your system does not cover all of the installation or all of the elements listed below then you will need to provide us with further information about how you intend to manage the site.

If you do intend to have a documented system or amend the one you currently have to meet the necessary standards, 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 intend to have a documented system, you must provide an overview of the management systems for each of the listed issues.

Operations and maintenance

Effective operational and preventative maintenance shall be employed on all aspects of the process where any failure could impact on the environment.

4.1.3 **Do you have documented procedures to control operations that may have an adverse impact on the environment?**

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

4.1.4 **Is there a defined procedure for identifying, reviewing and prioritising items of elements of the installation for which a preventative maintenance regime is appropriate?**

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

4.1.5 **Do you have documented procedures for monitoring emissions or impacts?**

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

4.1.6 **Does a preventative maintenance programme exist covering all elements of the installation, whose failure could lead to impact on the environment, including regular inspection of major 'non productive' items such as tanks, pipework, retaining walls, bunds ducts and filters?**

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

4.1.7 **Does the maintenance programme include auditing of performance against requirements arising from the above and reporting the result of audits to top management?**

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

Competence and training

The operator shall ensure that all relevant management and operational staff (including contractors and those responsible for purchasing equipment and materials) 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.*

4.1.8 **Confirm that an assessment of training needs has been carried out which identifies the posts for which specific environmental awareness training is needed and the scope and level of such training.**

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

How often is this assessment reviewed?

4.1.9 **Confirm that training systems, covering the following items, are in place for all relevant staff which cover**

awareness of the regulatory implications of the permit for the activity and their work activities;

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

awareness of all potential environmental effects from operation under normal and abnormal circumstances;

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

awareness of the need to report deviation from the permit

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

prevention of accidental emissions and action to be taken when accidental emissions occur;

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

4.1.10 **Are the skills and competencies necessary for key posts documented and are records of training needs and training received for these posts maintained?**

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

4.1.11 **Do the key posts include contractors and those purchasing equipment and materials?**

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

4.1.12 **Are the potential environmental risks posed by the work of contractors assessed and instructions provided to contractors about protecting the environment while working on site?**

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

Accidents/incidents/non conformance

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:

- *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; and promptly record the events and actions taken; and ensure the Regulator is made aware, as soon as practicable.*

4.1.13 **Do you have an accident plan?**

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

4.1.14 **Does the plan identify the likelihood and consequence of accidents?**

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

Does the plan identify actions to prevent accidents and mitigate any consequences?

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

4.1.15 **Do you have written procedures for handling, investigating, communicating and reporting actual or potential non-compliance with operating procedures or emission limits?**

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

4.1.16 **Do you have written procedures for handling, investigating, communicating and reporting environmental complaints?**

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

4.1.17 **Do you have written procedures for investigating incidents, (and near misses) including identifying suitable corrective action and following up implementation of that action?**

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

Organisation

The following aspects of organisational controls and site management procedures may not be in permit conditions but are likely to have an impact on the Authority resources required to apply the IPPC regulations.

4.1.18 **Has your company adopted an environmental policy and programme which:**

includes a commitment to continual improvement and prevention of pollution?

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

includes a commitment to comply with relevant legislation, and with other requirements to which the operator subscribes?

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

identifies, sets, monitors and reviews environmental objectives, independently of the

permit?

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

4.1.19 **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?

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

design and review of new facilities (including provision for their decommissioning), engineering and other capital projects?

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

capital approval?

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

purchasing policy?

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

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

○ No

Reference to section/page number of relevant document and date by which EMS systems will be in place

○ Yes

Managing documentation and records

4.1.21 **Provide the required information for each of the following elements of your management system**

	Where kept	How identified	
Policies			
Responsibilities			

Non-technical summary and management systems overview

	Where kept	How identified	Who responsible
Targets			
Maintenance records			
Procedures			
Monitoring records			
Results of audits			
Results of reviews			
Complaints and incident records			
Training records			

○ Yes

Name of the certification body

Certification body's registration number with UKAS

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?

4.2 Environmental statements

4.2.1 **Has the development of the installation (or any subsequent change or extension of the development) required an environmental statement under LN 204/2001 on the assessment of the effects of certain public and private projects on the environment?**

● No
○ Yes

Please supply a copy of the environmental statement submitted and details of any decision made and provide the document reference here:

4.3 Statutory consultees

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

4.3.1 **In which local authority area is the installation located?**

Local council If premises are on a boundary please give names of all relevant authorities.

L/O NAXXAR

4.3.2 **Are there anyother sites which may be affected by emissions from the installation**

○ No
● Yes

Please give names of the sites

QAWRA

4.33 **Could the installation involve the release of any substance into a harbour managed by a harbour authority?**

● No
○ Yes

Please name the harbour authority.

4.3.4 **Could the installation involve the release of any substance directly into relevant territorial waters or coastal waters ?**

○ No
● Yes

Please name the local fisheries committee.

4.4 Specified waste management activities

4.4.1 **Are you applying to operate any 'specified waste management activities' other than landfill?**

- ● No
- ● Yes

Please give details:

Gozo Waste Transfer Station
Sant Antnin Waste Treatment Plant – M'Scala

Planning status

4.4.2 **Which of the following applies to the specified waste management activities?**

We cannot issue a permit unless at least 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

- ☐ You have an established use certificate.

  Document reference number

- ☐ Planning permission is not required

  Please say why and provide written confirmation from the planning authority.

  Document reference number

- ☐ You have submitted an application for planning permission which has not yet been deter- mined.

  Please provide a copy of the application and give the document reference number

Fit and proper person

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

Relevant offences

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.

The information we need is listed below.

- *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.*

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

(●) No
( ) Yes

Please give full information or document reference number

Technical competence

( )

4.4.4 **Who will be responsible for managing the specified waste management activities?**

Please give details for each responsible person
For each person named below, we need to see a statement of qualifying experience and may want to carry out our own assessment.

<-- repeatable group starts here>

Responsible person

Title, for example Mr, Ms, Dr

ING

First name

VINCENT

Surname

MAGRI

Position

CHIEF EXECUTIVE OFFICER

Document reference of Authority letter

repeatable group ends here -->

( ) Yes

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

<-- repeatable group starts here>

Responsible person

Title, for example Mr, Ms, Dr

ING

First name

MARIO

Surname

AGIUS

Position

OPERATIONS EXECUTIVE

repeatable group ends here -->

Management of other installations

4.4.6 **Are any of these 'Responsible people' already providing the technically competent management at other IPPC installations**

- ● No
- ● Yes

For each person, please provide the site/installation name and address and licence/ permit reference number. Document reference:

SANT ANTNIN SOLID WASTE TREATMENT PLANT, MARSASCALA - MALTA

Technical and professional development

4.4.7 **How will you demonstrate ongoing technical and professional development for both the technically competent person and staff employed at the installation?**

Summary of proposals or document reference

Financial provision

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

☐ Renewable bonds

☐ Bonds

■ Bank guarantee

☐ Parent company guarantee

For parent company guarantee please provide 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.

Document reference for accounts

☐ Escrow account

☐ Trust fund

☐ Insurance captive

☐ Lump sum

☐ Other

Please specify

Expenditure plan

4.4.9 **Provide a plan of the estimated expenditure for each phase of the installation. This must show expenditure for each year for at least 30 years after the closure of each phase. For sites where stabilisation is not likely for 30 years then a period of 60 years should be used.**

The plan should include the likely costs of

- *monitoring*
- *restoration - landfill only*
- *aftercare - landfill only*
- *clearing the installation (including drainage systems) of all wastes - non- landfill*
- *remedial action in the event of the failure of pollution control systems. We*

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

Document reference

TO BE PROVIDED AT A LATER DATE

5 Glossary of terms

Term	Meaning
bentonite	a group of clay minerals that swell on wetting.
borehole	a hole drilled outside wastes for the purposes of monitoring or sampling.
capping material	a landfill covering, usually having a low permeability to water Permanent capping is part of the final restoration following completion of landfill/tipping. Temporary capping is an inter- mediate cap which may be removed on resumption of tipping.
cell	the compartment within a landfill in which waste is deposited: The cell has physical bounda- ries which may be a low permeability base, a bund wall and a low permeability cover.
Completion	The point when aftercare maintenance and monitoring is completed to such a level that the surrender test is met.
COMAH	Control of Major Accident Hazards Regulations 1999 S.I. 1999/No 743
cover	material used to cover solid wastes deposited in landfills. Daily cover may be used at the end of each working day to minimise odours, wind blown litter, insect or rodent infestation and water ingress. Final cover is the layer, or layers, of materials placed on the surface of the landfill prior to its restoration.
Construction Quality Assurance (CQA)	A planned and systematic application and recording of methods and actions designed to provide adequate confidence that items or services meet contractual and regulatory requirements and will perform satisfactorily in service.
Definitive closure	The point at which the Authority inspects the site and approves closure (normally when the landfill has stopped taking waste for disposal).
emission	The direct or indirect release of substances, vibrations, heat or noise from individual or dif- fuse sources in an installation into the air, water or land.
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, or schedule 1 of LN 337 of 2001
Existing (installation)	Landfill sites that have already been granted a Waste Management Licence or IPPC Permit or otherwise operational prior 30th October 1999
FAPP	In accordance with Regulation 4 of the Integrated Pollution Prevention and Control Regulations 2000 (as amended), a person shall be treated as not being a fit and proper person if it appears to the regulator that– • he or another relevant person has been convicted of a relevant offence; • 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 – • the obligations (including after-care provisions) arising from the permit in relation to that activity are discharged; and • any closure procedures required by the permit in relation to that activity are followed; • he and all staff engaged in carrying out that activity will not be provided with adequate professional technical development and training; or • the management of that activity will not be in the hands of a technically competent person
geomembrane/synthetic	an engineered polymeric material fabricated to a low hydraulic permeability.
geotextile	a geosynthetic material normally from man-made fibres which is fabricated to be permeable
groundwater	all water which is below the surface of the ground and in direct contact with the ground or subsoil.
Hazardous waste	Any waste as defined in Regulation 2 of LN337 of 2001

Term	Meaning
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 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 Waste Management Permit and Control Regulation 2001.
Installation	• a stationary technical unit where one or more activities listed in Schedule 1 are carried out; and • any other directly associated activities which have a technical connection with the activities carried out on that site and which could have an effect on emissions and pollution; • and, For the purposes of this document, 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 landfill waste.
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 Integrated Pollution Prevention and Control Regulations 2002 for the carrying out of the disposal of waste in a landfill.
Leachate	Any liquid percolating through the deposited waste and emitted from or contained within a landfill. .
LEL (lower explosive limit)	the lowest percentage concentration by volume of a flammable substance in air which will allow an explosion to occur in a confined space at 25°C and normal atmospheric pressure, and where an ignition source is present (units:%)
liner	a natural or synthetic membrane material, used to line the base and sides of a landfill site to reduce the rate of leachate and gas emissions
MAPP	Major Accident Prevention Policy: required for lower tier COMAH installations
monitoring	a continuous or regular periodic check to determine the on-going nature of the potential hazard, conditions along environmental pathways and the environmental impacts of landfill operations, to ensure the landfill is performing according to design. The general definition of monitoring includes measurements undertaken for compliance purposes and those under- taken to assess landfill performance.
New (installation)	Landfill sites which have not been operational before 30th October 1999 or have not been granted a Waste Management Licence before 30th October 1999
Non-hazardous waste	Waste which is neither hazardous nor inert
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. (LN 234 of 2002)