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Ireland

**WASTE LICENCE
LANDFILL FOR NON-HAZARDOUS WASTE**

PROPOSED DECISION

Waste Licence Application Register Number:	17-2
Applicant:	Limerick County Council
Location of Facility:	Gortadroma Landfill Site, Gortadroma, Ballyhahill, County Limerick.

INTRODUCTION

This introduction is not part of the licence and does not purport to be a legal interpretation of the licence.

This Waste Licence is for the continued landfilling by Limerick County Council at an engineered landfill, which is located at Gortadroma, Ballyhahill, County Limerick. This licence restricts the amount of waste to be landfilled to 130,000 tonnes per annum of non-hazardous waste.

The infrastructure at the facility includes facility offices, a weighbridge, a wheelwash, waste inspection/quarantine area, leachate collection, treatment and storage infrastructure, a landfill gas collection system with an enclosed flare, surface water collection infrastructure, a composting area and a civic waste facility.

The licence specifies the quality standards which the treated leachate has to meet prior to discharge to the White River.

This licence requires the provision of infrastructure for the utilisation of the landfill gas generated on site. The licensee is also required to implement measures at the facility for the control of odours at the facility.

The licensee must manage and operate the facility to ensure that the activities do not cause environmental pollution. The licensee is required to carry out regular environmental monitoring and submit all monitoring results and a range of reports on the operation and management of the facility to the Agency.

The licence sets out in detail the conditions under which Limerick County Council will operate and manage this facility.

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DECISION & REASONS FOR THE DECISION

Reasons for the decision

The Environmental Protection Agency (the Agency) is satisfied, on the basis of the information available, that the requirements of Section 40(4) of the Waste Management Act, 1996 have been complied with in respect of the application for a waste licence for the activities listed hereunder in Part I.

In reaching this decision the Agency has considered the application and supporting documentation received from the applicant, all submissions received from other parties and the report of its inspector.

Part I Activities Licensed

In pursuance of the powers conferred on it by the Waste Management Act, 1996, the Agency proposes, under Section 46(2) of the said Act to grant this Waste Licence to Limerick County Council, Council Buildings, 79-84 O'Connell Street, Limerick to carry on the waste activities listed below at Gortadroma Landfill, Gortadroma, Ballyhahill, County Limerick subject to twelve conditions, with the reasons therefor and the associated schedules attached thereto set out in the licence.

*Licensed Waste Disposal Activities, in accordance with the
Third Schedule of the Waste Management Act 1996*

Class 1	Deposit on, in or under land (including landfill): This activity is limited to waste disposed of at the landfill prior to 1997 which was placed into unlined cells in the exhausted sand and gravel pit.
Class 2	Land treatment, including biodegradation of liquid or sludge discards in soils: This activity is limited to the disposal of sludge from municipal water treatment and wastewater treatment plants and non-hazardous industrial sludge at the facility.
Class 4	Surface impoundment, including placement of liquid or sludge discards into pits, ponds or lagoons: This activity is limited to the storage of leachate in the leachate storage lagoon prior to treatment.
Class 5	Specially engineered landfill, including placement into lined discrete cells which are capped and isolated from one another and the environment: This activity is limited to the disposal of waste in lined cells.
Class 6	Biological treatment not referred to elsewhere in this Schedule which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1 to 10 of this Schedule: This activity is limited to the treatment of leachate at the facility.
Class 7	Physico-chemical treatment not referred to elsewhere in this Schedule (including evaporation, drying and calcination) which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1 to 10 of this Schedule: This activity is limited to the treatment of leachate by settlement, filtration or by chemical precipitation or other physico-chemical means at the leachate treatment plant.
Class 11	Blending or mixture prior to submission to any activity referred to in a preceding paragraph of this Schedule: This activity is limited to the mixing of sludge with other wastes during the landfilling process to ensure that the waste body is as homogenous as possible.
Class 13	Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced:

This activity is limited to the storage of waste prior to its disposal.

*Licensed Waste Recovery Activities, in accordance with the
Fourth Schedule of the Waste Management Act 1996*

Class 2	Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes): This activity is limited to the composting of green waste accepted subject to a limit of 1000m ³ of compost and waste at any one time at the facility, the storage of waste oils at the civic waste facility and the use of wood chippings as weekend cover only.
Class 3	Recycling or reclamation of metals and metal compounds: This activity is limited to the storage of metal and metal compounds at the facility.
Class 4	Recycling or reclamation of other inorganic materials: This activity is limited to the storage of inorganic materials at the facility prior to reuse on-site or off-site.
Class 9	Use of any waste principally as a fuel or other means to generate energy: This activity is limited to the provision of a landfill gas recovery facility.
Class 10	The treatment of any waste on land with a consequential benefit for an agricultural activity or ecological system: This activity is limited to the use of organic waste which has been fully composted as intermediate cover and in the closure/restoration stage of the landfill.
Class 11	Use of waste obtained from any activity referred to in a preceding paragraph of this Schedule: This activity is limited to the use of composted waste as landfill cover material.
Class 12	Exchange of waste for submission to any activity referred to in a preceding paragraph of this Schedule: This activity is limited to the possible exchange of waste being delivered to the facility in exchange for processed waste subject to the agreement of the Agency.
Class 13	Storage of waste intended for submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where such waste is produced: This activity is limited to the temporary storage of waste prior to inspection, recycling, recover and/or reuse at the facility or elsewhere.

INTERPRETATION

All terms in this licence should be interpreted in accordance with the definitions in the Waste Management Act, (the Act), unless otherwise defined in this section.

Adequate lighting	20 lux measured at ground level.
Agreement	Agreement in writing.
Annually	At approximately twelve monthly intervals.
Attachment	Any reference to Attachments in this licence refers to attachments submitted as part of the waste licence application.
Application	The application by the licensee for this waste licence.
Appropriate facility	A waste management facility, duly authorised under relevant law and technically suitable.
BAT	Best Available Techniques as defined in Article 2(11) of Council Directive 96/61/EC concerning integrated pollution prevention and control.
Biodegradable waste	Any waste that is capable of undergoing anaerobic or aerobic decomposition, such as food, garden waste, sewage sludge, paper and paperboard.
Condition	A condition of this licence.
Containment boom	A boom which can contain spillages and prevent them from entering drains or watercourses.
Cover material	Bricks, crushed concrete, tarmac, earth, soil, sub-soil, stone, rock or other similar natural materials; or other cover material the use of which has been agreed with the Agency.
Daily Cover	Is the term used to describe material spread (about 150mm if soil cover is used) over deposited waste at the end of each day. Synthetic materials may also be used. Its objective is to minimise odour, the amount of litter generated and to control flies and access to the waste by birds and vermin. Where soils are used for daily cover, it is recommended that they be removed at the start of the day and subsequently reused as much as possible.
Daytime	0800 hrs to 2200 hrs.
Documentation	Any report, record, result, data, drawing, proposal, interpretation or other document in written or electronic form which is required by this licence.
Drawing	Any reference to a drawing or drawing number means a drawing or drawing number contained in the application, unless otherwise specified in this licence.
Emergency	Those occurrences defined in Condition 9.4.
Emission Limits	Those limits, including concentration limits and deposition levels established in <i>Schedule C: Emission Limits</i> , of this licence.
European Waste Catalogue (EWC)	A harmonised, non-exhaustive list of wastes drawn up by the European Commission and published as Commission Decision 94/3/EC and any subsequent amendment published in the Official Journal of the European

	Community.
Green waste	Waste wood (excluding timber), plant matter such as grass cuttings and other vegetation.
Hours of Operation	The hours during which the facility is authorised to be operational.
Hours of Waste Acceptance	The hours during which the facility is authorised to accept waste.
Incident	The following shall constitute an incident for the purposes of this licence:- <ul style="list-style-type: none"> a) An emergency; b) Any emission which does not comply with the requirements of this licence; c) Any trigger level specified in this licence which is attained or exceeded; d) Any indication that environmental pollution has, or may have, taken place; e) Any breakdown in the enclosed landfill gas flare /utilisation plant (when installed); f) Where treated leachate being discharged exceeds 2 toxic units; and g) Any malfunction of any environmental control system.
Inert waste	Waste that does not undergo any 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 likely to give rise to environmental pollution or harm human health. The total leachability and pollutant content of the waste and the ecotoxicity of the leachate must be insignificant, and in particular not endanger the quality of surface water and/or groundwater.
Intermediate Cover	Refers to placement of material (minimum 300mm if soil is used) for a period of time prior to restoration or prior to further disposal of waste.
Landfill	Refers to the area of the facility where the waste is disposed of by placement on the ground or on other waste.
Landfill Gas	Gases generated from the landfilled waste.
LEL (Lower Explosive Limit)	The lowest percentage concentration by volume of a mixture of flammable gas with air which will propagate a flame at 25°C and atmospheric pressure.
Licence	A waste licence issued in accordance with the Act.
Licensee	Limerick County Council.
Liquid Waste	Any waste in liquid form, containing less than 2% dry matter or tankered to the facility.
Maintain	Keep in a fit state, including such regular inspection, servicing and repair as may be necessary to adequately perform its function.
Monthly	A minimum of twelve times per year, at approximately monthly intervals.

Night-time

2200 hrs to 0800 hrs.

Quarterly

At approximately three monthly intervals.

Sample(s)	Unless the context of this licence indicates to the contrary, samples shall include measurements by electronic instruments.
Sludge	The accumulation of solids resulting from chemical coagulation, flocculation and/or sedimentation after water or wastewater treatment with between 2% and 14% dry matter.
Specified Emissions	Those emissions listed in <i>Schedule C: Emission Limits</i> , of this licence.
Specified Engineering Works	Those engineering works listed in <i>Schedule B: Specified Engineering Works</i> , of this licence.
Treated Sludge	Sludge which has undergone biological, chemical or heat treatment, long-term storage or any other appropriate process so as significantly to reduce its fermentability and the health hazards resulting from its use.
Treatment	Treatment means the physical, thermal, chemical or biological processes, including sorting, that change the characteristics of the waste in order to reduce its volume or hazardous nature, facilitate its handling or enhance recovery.
Trigger Level	A parameter value specified in the licence, the achievement or exceedance of which requires certain actions to be taken by the licensee.
EPA Working Day	Refers to the following hours: 0900 hrs to 1730 hrs Monday to Friday inclusive.
Working Face	The area of the site in which waste other than cover material or material for the purposes of the construction of specified engineering works is being deposited.

PART II CONDITIONS

CONDITION 1 SCOPE OF THE LICENCE

- 1.1. Waste activities at the facility shall be restricted to those listed and described in Part I: Activities Licensed and authorised by this licence.
- 1.2. For the purposes of this licence, the facility is the area of land outlined in red on Drawing No. DG0004 Rev. A01 entitled 'Site Boundary' of the application. Any reference in this licence to "facility" shall mean the area thus outlined in red.
- 1.3. This licence is for the purposes of waste licensing under the Waste Management Act, 1996 only and nothing in this licence shall be construed as negating the licensee's statutory obligations or requirements under any other enactments or regulations.
- 1.4. Municipal Waste, Commercial Waste and Industrial Waste may be recovered and disposed of at the facility subject to the maximum quantities and other constraints listed in *Schedule A: Waste Acceptance*, of this licence.
- 1.5. Waste Acceptance
 - 1.5.1. No hazardous wastes or liquid wastes shall be disposed of at the facility.
 - 1.5.2. Whole used tyres (other than bicycle tyres and tyres with an outside diameter greater than 1400mm) shall not be disposed of at the facility from 16 July 2003. Shredded used tyres shall not be disposed of at the facility from 16 July 2006.
 - 1.5.3. The licensee shall ensure that all waste accepted at the facility is subject to treatment by 16th July 2009 or earlier if otherwise instructed by the Agency. This provision may not apply to inert waste for which treatment is not technically feasible, nor to any other waste for which such treatment does not contribute to the objectives of the Landfill Directive (1999/31/EC), as set out in Article 1 of the Directive by reducing the quantity of the waste or the hazards to human health or the environment.
- 1.6. Waste Acceptance Hours and Hours of Operation
 - 1.6.1. Landfill
 - 1.6.1.1. Waste may only be accepted at the facility for disposal at the landfill between the hours of 8.00am and 5.00pm Monday to Friday inclusive and between 8.00am and 5.00pm on Saturdays preceding Bank Holidays.
 - 1.6.1.2. The landfill at the facility may only be operated during the hours of 7.30am to 8.00pm Monday to Friday inclusive, 7.30am to 6.30pm on Saturdays and 8.00am to 4.30pm on Sundays and Bank Holidays.
 - 1.6.1.3. No construction activities are allowed on Sundays and Bank Holidays.
 - 1.6.1.4. Operations on Sundays and Bank Holidays are limited to essential maintenance and fly spraying activities only.
 - 1.6.1.5. Waste shall not be accepted at the landfill on Sundays and Bank Holidays.
 - 1.6.2. Civic Waste Facility
 - 1.6.2.1. Waste shall only be accepted at the Civic Waste Facility between the hours of 8.00am to 5.00pm Monday to Friday inclusive and 8.00am to 5.00pm on Saturdays preceding Bank Holidays.

- 1.7 Where the Agency considers that a non-compliance with any condition of this licence has occurred, it may serve a notice on the licensee specifying.
- 1.7.1 That only those wastes as specified, if any, in the notice are to be accepted at the facility after the date set down in the notice.
- 1.7.2 That the licensee shall undertake the works stipulated in the notice, and/or otherwise comply with the requirements of the notice as set down therein, within the time-scale contained in the notice.
- 1.7.3 That the licensee shall carry out any other requirement specified in the notice.
- When the notice has been complied with, the licensee shall provide written confirmation that the requirements of the notice have been carried out. No waste, other than that which is stipulated in the notice, shall be accepted at the facility until written permission is received from the Agency.
- 1.8 Every plan, programme or proposal submitted to the Agency for its agreement pursuant to any condition of this licence shall include a proposed timescale for its implementation. The Agency may modify or alter any such plan, programme or proposal in so far as it considers such modification or alteration to be necessary and shall notify the licensee in writing of any such modification or alteration. Every such plan, programme or proposal shall be carried out within the timescale fixed by the Agency but shall not be undertaken without the agreement of the Agency. Every such plan, programme or proposal agreed by the Agency shall be covered by the conditions of this licence.
- 1.9 This licence is being granted in substitution for the waste licence granted to the licensee on 26th November 1999 and bearing Waste Licence Register No: 17-1. The previous waste licence (Register No: 17-1) is superseded by this licence.

REASON: To clarify the scope of this licence.

CONDITION 2 MANAGEMENT OF THE FACILITY

2.1 Facility Management

- 2.1.1 The licensee shall employ a suitably qualified facility manager with experience commensurate with the level of expertise required who shall be designated as the person in charge. The facility manager or a nominated, suitably qualified and experienced, deputy shall be present on the facility at all times during its operation.
- 2.1.2 The Civic Waste Facility shall be supervised by an appropriately qualified and competent person at all times while waste is being accepted.
- 2.1.3 Both the facility manager and deputy, and any replacement manager or deputy, shall successfully complete both the FAS Waste Management Training Programme (or equivalent agreed with the Agency) and associated on site assessment appraisal within twelve months of appointment.
- 2.1.4 The licensee shall ensure that personnel performing specifically assigned tasks shall be qualified on the basis of appropriate education, training and experience, as required and shall be aware of the requirements of this licence.

2.2 Management Structure

- 2.2.1 In the event of changes to the details already on file, the licensee shall submit within three months written updated details of the management structure of the facility to the Agency.

Any proposed replacement in the management structure shall be notified in advance in writing to the Agency. Written details of the management structure shall include the following information:-

- a) The names of all persons who are to provide the management and supervision of the waste activities authorised by the licence, in particular the name of the facility manager and any nominated deputies;
- b) Details of the responsibilities for each individual named under a) above; and
- c) Details of the relevant education, training and experience held by each of the persons nominated under a) above.

2.3 Environmental Management System (EMS)

2.3.1 The licensee shall establish and maintain an EMS. Within eighteen months from the date of grant of this licence, the licensee shall submit to the Agency for its agreement a proposal for the updating (where appropriate) of the documented EMS for the facility. Following the agreement of the Agency, the licensee shall establish and maintain such a system. The EMS shall be updated on an annual basis with amendments being submitted to the Agency for its agreement.

2.3.2 The EMS shall include as a minimum the following elements.

2.3.2.1 Schedule of Environmental Objectives and Targets

The objectives should be specific and the targets measurable. The schedule shall address a five-year period as a minimum. The schedule shall include a time-scale for achieving the objectives and targets and shall comply with any other written guidance issued by the Agency.

2.3.2.2 Environmental Management Plan (EMP)

The EMP shall include, as a minimum, the following: -

- a) The items specified to be contained in an Environmental Management Plan in the *Landfill Operational Practices* Manual published by the Agency;
- b) Methods by which the objectives and targets will be achieved and the identification of those responsible for achieving those objectives and targets; and
- c) Any other items required by written guidance issued by the Agency.

2.3.2.3 Corrective Action Procedures

The Corrective Action Procedures shall detail the corrective actions to be taken should any of the procedures detailed in the EMS not be followed.

2.3.2.4 Awareness and Training Programme

The Awareness and Training Programme shall identify training needs, for personnel who work in or have responsibility for the licensed facility.

2.4 Communications Programme

2.4.1 The licensee shall establish and maintain a Communications Programme to inform and involve the local community and to ensure that members of the public can obtain

information at the facility, at all reasonable times, concerning the environmental performance of the facility.

REASON: To make provision for the proper management of the activity on a planned basis having regard to the desirability of ongoing assessment, recording and reporting of matters affecting the environment.

CONDITION 3 FACILITY INFRASTRUCTURE

3.1 The licensee shall establish all infrastructure referred to in this licence or as required by the conditions of this licence.

3.2 Specified Engineering Works

3.2.1 The licensee shall submit proposals for all Specified Engineering Works, as defined in *Schedule B: Specified Engineering Works*, of this licence, to the Agency for its agreement at least two months prior to the intended date of commencement of any such works. No such works shall be carried out without the prior agreement of the Agency.

3.2.2 All specified engineering works shall be supervised by a competent person(s) and that person, or persons, shall be present at all times during which relevant works are being undertaken.

3.2.3 Following the completion of all specified engineering works, the licensee shall complete a construction quality assurance validation. The validation report shall be made available to the Agency on request. The report shall include the following information:-

- a) A description of the works;
- b) As-built drawings of the works;
- c) Records and results of all tests carried out (including failures);
- d) Drawings and sections showing the location of all samples and tests carried out;
- e) Daily record sheets/diary;
- f) Name(s) of contractor(s)/individual(s) responsible for undertaking the specified engineering works;
- g) Name(s) of individual(s) responsible for supervision of works and for quality assurance validation of works;
- h) Records of any problems and the remedial works carried out to resolve those problems; and
- i) Any other information requested in writing by the Agency.

3.3 Facility Notice Board

3.3.1 The licensee shall provide and maintain a Facility Notice Board on the facility so that it is legible to persons outside the main entrance to the facility. The minimum dimensions of the board shall be 1200 mm by 750 mm.

3.3.2 The board shall clearly show:-

- a) The name and telephone number of the facility;
- b) The normal hours of opening;
- c) The name of the licence holder;
- d) An emergency out of hours contact telephone number;

- e) The licence reference number; and
- f) Where environmental information relating to the facility can be obtained.

3.4 Facility Security

3.4.1 Security and stockproof fencing and gates shall be installed and maintained at the facility boundary. The base of the fencing shall be set in the ground. Subject to the implementation of the restoration and aftercare plan and to the agreement of the Agency, the requirement for such site security may be removed.

3.4.2 The licensee shall remedy any defect in the gates and/or fencing as follows:-

- a) A temporary repair shall be made by the end of the working day; and
- b) A repair to the standard of the original gates and/or fencing shall be undertaken within three working days.

3.4.3 The licensee shall provide and maintain a CCTV monitoring system at the main entrance to the facility.

3.5 Facility Roads and Site Surfaces

3.5.1 Site roads shall be provided and maintained to ensure the safe movement of vehicles within the facility.

3.6 Facility Office

3.6.1 The licensee shall provide and maintain an office at the facility. The office shall be constructed and maintained in a manner suitable for the processing and storing of documentation.

3.6.2 The licensee shall provide and maintain a working telephone and a method for electronic transfer of information at the facility.

3.7 Waste Inspection and Quarantine Areas

3.7.1 A Waste Inspection Area and a Waste Quarantine Area shall be provided and maintained at the facility.

3.7.2 These areas shall be constructed and maintained in a manner suitable, and be of a size appropriate, for the inspection of waste and subsequent quarantine if required. The waste inspection area and the waste quarantine area shall be clearly identified and segregated from each other.

3.7.3 Drainage from these areas shall be directed to the leachate collection system.

3.8 Weighbridge/Wheel Cleaning

3.8.1 The licensee shall provide and maintain a weighbridge and a wheelwash at the facility.

3.9 Waste Water Treatment Plant

3.9.1 The licensee shall provide and maintain a Wastewater Treatment plant at the facility for the treatment of wastewater arising on-site. Any percolation area shall satisfy the criteria set out in the *Wastewater Treatment Manual, Treatment Systems for Single Houses*, published by the Environmental Protection Agency.

3.10 Tank and Drum Storage Areas

- 3.10.1 All tank and drum storage areas shall be rendered impervious to the materials stored therein.
- 3.10.2 All tank and drum storage areas shall, as a minimum, be banded, either locally or remotely, to a volume not less than the greater of the following:-
- (a) 110% of the capacity of the largest tank or drum within the banded area; or
 - (b) 25% of the total volume of substance which could be stored within the banded area.
- 3.10.3 All drainage from banded areas shall be diverted for collection and safe disposal.
- 3.10.4 All inlets, outlets, vent pipes, valves and gauges must be within the banded area.
- 3.10.5 The integrity and water tightness of all the bunds and their resistance to penetration by water or other materials stored therein shall be confirmed by the licensee and shall be reported to the Agency following its installation and prior to its use as a storage area. This confirmation shall be repeated at least once every three years thereafter and reported to the Agency on each occasion.
- 3.11 Landfill Lining
- 3.11.1 The landfill liner shall comprise:-
- a) A composite liner consisting of a 1m layer of compacted soil with a hydraulic conductivity of less than or equal to 1×10^{-9} m/s, (or equivalent to be agreed with the Agency) overlain by a 2mm thick high density polyethylene (HDPE) layer;
 - b) A geotextile protection layer placed over the HDPE layer;
 - c) A 500mm thick drainage layer placed over the geotextile layer with a minimum hydraulic conductivity of 1×10^{-3} m/s, of pre-washed, uncrushed, granular, rounded stone (16 - 32mm grain size) incorporating leachate collection drains; and
 - d) The side walls shall be designed and constructed to achieve an equivalent protection.
- 3.11.2 The liner detailed design and its construction shall be in accordance with the guidelines provided in the Agency's *Landfill Manual, Landfill Site Design*.
- 3.12 Leachate Management Infrastructure
- 3.12.1 Leachate management infrastructure consisting of the following shall be provided and maintained at the facility:
- a) A leachate collection system for the collection of leachate from each cell at the facility;
 - b) Three leachate abstraction wells inside the bentonite cut-off wall (Cells 1-4);
 - c) A lagoon for the storage of raw leachate prior to treatment;
 - d) A lagoon for the storage of treated leachate;
 - e) A leachate treatment plant and associated works; and
 - f) A telemetry system for the control of leachate flow and monitoring.
- 3.12.2 All structures for the storage and/or treatment of leachate shall be fully enclosed except for inlet and outlet piping.

3.13 Landfill Gas Management

3.13.1 Landfill gas management infrastructure consisting of the following shall be provided and maintained at the facility:

- a) A system for the active collection and flaring of landfill gas;
- b) The flare shall be of an enclosed type design and the combustion air supply shall be controlled so as to achieve a minimum temperature of 1000°C and 0.3 seconds retention time at this temperature. Flare unit efficiency shall be tested annually;
- c) Within twelve months from the date of grant of this licence, the utilisation of landfill gas as an energy source shall be undertaken at the facility. The design and operation of the landfill gas utilisation plant shall be agreed in advance with the Agency; and
- d) The licensee shall ensure that sufficient flaring and/or utilisation capacity is provided for and maintained at the facility to deal with all the landfill gas generated at the facility.

3.13.2 All buildings constructed on the facility shall have regard to the guidance given in the Department of Environment 1994 publication "Protection of New Buildings and Occupants from Landfill Gas" and any subsequent revisions.

3.13.3 The licensee shall maintain all gas wells, pipework, valves, pumps, flares and other infrastructure that form part of the landfill gas management scheme in a safe and fully operational manner.

3.14 Surface Water Management

3.14.1 Effective surface water management infrastructure shall be provided and maintained at the facility during construction, operation, restoration and aftercare of the facility. As a minimum, the infrastructure shall consist of the following:-

- a) A system for the collection and diversion of run off from the facility such that contaminated water is prevented from discharging into surface water courses. This run-off shall be diverted to a stormwater settling and holding ponds; and
- b) Control measures shall be incorporated into the design of the stormwater settling and holding ponds such that, if necessary, its contents can be isolated and discharged to the leachate management infrastructure or tankered off-site.

3.15 Groundwater Management

3.15.1 Effective groundwater management infrastructure shall be provided and maintained at the facility during construction, operation, restoration and aftercare of the facility. As a minimum, the infrastructure shall be capable of the following:-

- a) The protection of the groundwater resources from pollution by the waste activities; and
- b) The protection of other infrastructure, such as the liner, from any adverse effects caused by the groundwater.

3.16 Civic Waste Facility

3.16.1 The licensee shall provide and maintain a Civic Waste Facility. All waste types shall be collected and stored in appropriate containers or in appropriately banded storage areas as necessary.

3.17 Compost facility

3.17.1 Appropriate infrastructure for the composting of green waste shall be established and maintained at the facility prior to any waste being composted. This infrastructure shall at a minimum comprise the following:-

- a) An impermeable concrete slab; and
- b) Collection and disposal of all run-off to the leachate collection system.

3.18 Monitoring Infrastructure

- a) Monitoring infrastructure which is damaged or proves to be unsuitable for its purpose shall be replaced within three months of it being damaged or recognised as being unsuitable.

REASON: To provide appropriate infrastructure for the protection of the environment.

CONDITION 4 RESTORATION AND AFTERCARE

4.1. The licensee shall restore the facility on a phased basis. Within nine months from the date of grant of this licence, the licensee shall submit to the Agency for agreement an updated Restoration and Aftercare plan for the facility. This plan should include a schedule detailing the various stage of restoration, including timescales for the implementation of each phase and a drawing showing the final pre-settlement height of the waste prior to capping and after capping.

4.2. Final Capping

4.2.1. The final capping shall consist of the following:-

- a) Top soil (150 -300mm);
- b) Subsoils, such that total thickness of top soil and subsoils is at least 1m;
- c) Drainage layer of 0.5m thickness having a minimum hydraulic conductivity of 1×10^{-4} m/s or an equivalent geosynthetic layer;
- d) Compacted mineral layer of a minimum 0.6m thickness with a permeability of less than 1×10^{-9} m/s or a geosynthetic material (e.g. GCL) or similar that provides equivalent protection; and
- e) Gas collection layer of natural material (minimum 0.3m) or a geosynthetic layer.

4.3. No material or object that is incompatible with the proposed restoration of the facility shall be present within one metre of the final soil surface levels.

4.4. Where tree planting is to be carried out above waste-filled areas, a synthetic barrier shall be used to augment the clay cap. Combined topsoil and subsoil depths shall be a minimum of 1m.

4.5. Soil Storage

4.5.1. All soils shall be stored to preserve the soil structure for future use.

4.5.2. All stockpiles shall be maintained so as to minimise dust generation.

REASON: To provide for the restoration of the facility.

CONDITION 5 FACILITY OPERATION AND WASTE MANAGEMENT

- 5.1 Wastes shall not be deposited in any cell or part of the landfill without the prior agreement of the Agency.
- 5.2 Wastes shall only be accepted at the facility from holders of waste collection permits issued under the Waste Management (Collection) Permit Regulations 2001 and from licensed/permitted facilities. Copies of the waste collection permits, waste licences and waste permits must be maintained at the facility.
- 5.3 Waste Acceptance and Characterisation Procedures
- 5.3.1 The licensee shall maintain detailed written procedures at the facility for the acceptance and handling of all wastes. These procedures shall include methods for the characterisation of waste in order to distinguish between inert, non-hazardous and hazardous wastes. The procedures shall have regard to the EU decision (2003/22/EC) on establishing the criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II of Directive (1999/31/EC) on the landfill of waste.
- 5.3.2 All wastes shall be checked at the working face to ensure that they comply with the requirements of this licence. Any wastes not suitable for acceptance shall be removed for recovery or disposal at an appropriate alternative facility. Such waste shall be stored in the Waste Quarantine Area only. No waste shall be stored in the Waste Quarantine Area for more than three months.
- 5.4 Working Face
- 5.4.1 Unless the prior agreement of the Agency is given, the following shall apply at the landfill:-
- a) Only one working face shall exist at the landfill at any one time for the deposit of waste other than cover or restoration materials; and
- b) The working face of the landfill shall be no more than 2.5 metres in height after compaction, no more than 25 metres wide and no more than 50m long and have a slope no greater than 1 in 3.
- 5.4.2 All waste deposited at the working face shall be compacted, using a steel wheeled compactor, and covered as soon as is practicable and at any rate prior to the end of the working day.
- 5.4.3 The working face, or faces, shall each day at the end of the day, be covered with suitable material.
- 5.5 Daily and Intermediate Cover
- 5.5.1 Any cover material at any location within the facility which is eroded, washed off or otherwise removed shall be replaced by the end of the working day.
- 5.5.2 Appropriate cover material shall be placed across the whole landfill so that no waste, other than the following is exposed:-
- a) Waste suitable for specified engineering works; and
- b) Waste on the working face during the operational hours of the facility.
- 5.6 Landscaping

- 5.6.1 Within three months from the date of grant of this licence, an updated landscaping plan for the facility shall be submitted to the Agency for agreement.
- 5.7 Operational Controls
- 5.7.1 All large hollow objects and other large articles deposited at the facility shall be crushed, broken up, flattened or otherwise treated.
- 5.7.2 Wastes once deposited and covered shall not be excavated, disturbed or otherwise picked over with the exception of works associated with the construction and installation of the final cap, leachate and landfill gas collection systems unless otherwise agreed with the Agency.
- 5.7.3 Completed areas of the landfill shall be profiled so that no depressions exist in which water may accumulate. Any depressions arising after profiling shall be rectified by the emplacement of suitable capping or restoration materials.
- 5.7.4 Filled cells shall be permanently capped within twelve months of the cells having been filled to the required level.
- 5.7.5 Scavenging shall not be permitted at the facility.
- 5.7.6 Gates shall be locked shut when the facility is unsupervised.
- 5.7.7 The licensee shall provide and use adequate lighting during the operation of the facility in hours of darkness.
- 5.7.8 Fuels shall only be stored at appropriately banded locations on the facility.
- 5.7.9 All tanks and drums shall be labelled to clearly indicate their contents.
- 5.7.10 No smoking shall be allowed on the facility other than in the facility office.
- 5.8 Waste Handling
- 5.8.1 Sludge
- 5.8.1.1 Industrial and sewage sludge shall only be accepted at the facility between the hours of 8.00am and 2.00pm Monday to Friday inclusive. All sludges shall be covered immediately with other waste.
- 5.8.2 Compost
- 5.8.2.1 In order not to be considered a waste, compost produced by the facility shall comply with the quality standards established in *Schedule F: Standards for Compost Quality*, of this licence. Analysis of the compost shall be in accordance with the requirements of that Schedule.
- 5.8.3 Wood Chippings
- 5.8.3.1 Wood chippings accepted at the facility for use as weekend cover shall be appropriately stored at the facility so as not to cause a nuisance.
- 5.9 Off-site Disposal and Recovery
- 5.9.1 Waste sent off-site for recovery or disposal shall only be conveyed by a waste contractor agreed in advance by the Agency. Any request for such agreement of a waste carrier shall include the following;
- (i) Copies of the waste carrier's permit(s) under the Waste Management (Collection Permit) Regulations 2001.
- (ii) Details of the waste types it is proposed the carrier will transfer from the facility.
- 5.9.2 All waste transferred from the facility shall only be transferred to an appropriate facility agreed by the Agency; Any request for agreement of such a facility shall be forwarded to the Agency at least one month in advance of its proposed use and shall include the following;

- (i) A copy of the waste permit or waste licence where applicable.
- (ii) The proposed waste types and quantities.
- (iii) Details of any limitations on waste types and quantities acceptable at the facility.

5.9.3 All wastes removed off-site for recovery or disposal shall be transported from the facility to the consignee in a manner which will not adversely affect the environment.

5.10 Civic Waste Facility

5.10.1 The Civic Waste Facility shall only be used by private vehicles. The facility shall not be used as a transfer station for disposal of waste by commercial waste disposal contractors or local authority waste collection vehicles.

5.10.2 All waste deposited in the Civic Waste Facility shall be either:-

- a) Into a skip;
- b) Into a receptacle for recovery; or
- c) In the case where inspection is required, into a designated inspection area.

5.10.3 The licensee shall assign and clearly label each container at the Civic Waste Facility to indicate their contents.

5.10.4 Waste to be delivered to the Civic Waste Facility shall be limited to household waste, glass, beverage cans, textiles, paper, cardboard, plastics, timber, metals, fluorescent tubes, waste oils, household hazardous waste, batteries and other waste types subject to the prior written agreement of the Agency.

5.10.5 Household waste delivered to the civic waste facility for disposal shall be deposited at the working face prior to the end of the working day.

5.11 Leachate Management

5.11.1 Leachate levels in the lined cells shall not exceed a level of 1.0m over the top of the liner at the base of the landfill.

5.11.2 The frequency of leachate removal/discharge from the leachate lagoons shall be such that a minimum freeboard of 0.75m shall be maintained in the leachate lagoons at all times.

5.11.3 Unless treated on the facility, leachate or contaminated water shall be disposed of by tankering off-site in fully enclosed road tankers to a Waste Water Treatment Plant to be agreed in advance with the Agency.

5.11.4 Recirculation of leachate or other contaminated water shall not be undertaken without the prior agreement of the Agency and, in any case, shall only be undertaken within cells which have been lined to the satisfaction of the Agency.

5.12 Maintenance

5.12.1 All treatment/abatement and emission control equipment shall be calibrated and maintained, in accordance with the instructions issued by the manufacturer/supplier or installer. Written records of the calibrations and maintenance shall be made and kept by the licensee.

- 5.12.2 All lagoon structures on the facility shall be inspected and certified fit for purpose every three years by an independent and appropriately qualified chartered engineer.
- 5.12.3 The licensee shall maintain and clearly label and name all sampling and monitoring locations.
- 5.12.4 The wheel-wash shall be inspected on a daily basis and drained as required. Silt, stones and other accumulated material shall be removed as required from the wheel-wash and disposed of at the working face or to a skip.

REASON: To provide for appropriate operation of the facility to ensure protection of the environment.

CONDITION 6 EMISSIONS

- 6.1. No specified emission from the facility shall exceed the emission limit values set out in *Schedule C: Emission Limits*, of this licence. There shall be no other emissions of environmental significance.
- 6.2. The licensee shall ensure that the activities shall be carried out in a manner such that emissions do not result in significant impairment of, or significant interference with the environment beyond the facility boundary.
- 6.3. Landfill Gas
- 6.3.1. The following are the trigger levels for landfill gas emissions from the facility measured in any service duct or manhole on, at or immediately adjacent to the facility and/or at any other point located outside the body of the waste:-
- a) Methane, greater than or equal to 1.0% v/v; or
 - b) Carbon dioxide, greater than or equal to 1.5% v/v.
- 6.3.2. The concentration limits for emissions to atmosphere specified in this licence shall be achieved without the introduction of dilution air and shall be based on gas volumes under standard conditions of :-
- a) In the case of landfill gas flare:
Temperature 273 K, pressure 101.3 kPa, dry gas at 3% oxygen; and
 - b) In the case of landfill gas combustion plant:
Temperature 273 K, pressure 101.3 kPa, dry gas; 5% oxygen.
- 6.3.3. Emission limits for emissions from landfill gas flare/combustion plant to atmosphere in this licence shall be interpreted in the following way.
- 6.3.3.1. Continuous monitoring
- a) No 24 hour mean value shall exceed the emission limit value;
 - b) 97% of all 30 minute mean values taken continuously over an annual period shall not exceed 1.2 times the emission limit value; and
 - c) No 30 minute mean value shall exceed twice the emission limit value.
- 6.3.3.2. Non-Continuous Monitoring
- a) For any parameter where, due to sampling/analytical limitations, a 30 minute sample is inappropriate, a suitable sampling period should be employed and the value obtained therein shall not exceed the emission limit value;

- b) For all other parameters, no 30 minute mean value shall exceed the emission limit value; and
- c) For flow, no hourly or daily mean value shall exceed the emission limit value.

6.4. Groundwater

6.4.1 Within six months from the date of grant of this licence, the licensee shall submit to the Agency for its agreement, groundwater monitoring trigger levels in accordance with the requirements of Directive 1999/31/EC for groundwater monitoring boreholes Collins well (new), SA1 and GW5.

6.5. Emissions to Surface Water

6.5.1. The licensee shall submit a proposal to the Agency for its agreement on the flow control measures (at the leachate treatment facility and in the receiving water) to be implemented to satisfy the relevant conditions and schedules of this licence. This report shall contain as a minimum: the control measures, a leachate discharge flow control loop, the location and design of any sampling and measuring devices on the leachate discharge line and the White River to ensure accurate readings (including backup equipment i.e. staff gauge). No leachate shall be discharged from the facility until this report has been agreed with the Agency and the relevant infrastructure installed and commissioned.

6.5.2. Treated leachate shall only be discharged from the facility when:

- (a) It meets the emission limit values as outlined in *Schedule C: Emission Limits* of this licence;
- (b) The flow in the receiving water is greater than 50 litres per second; and
- (c) There are greater than 40 dilutions in the receiving water.

When criteria (a), (b) or (c) are not satisfied any treated effluent shall be returned to the treated leachate storage lagoon.

6.5.3. No untreated leachate shall be discharged to the White River.

6.5.4. No substance shall be discharged in a manner, or at a concentration which, following initial dilution causes tainting of fish or shellfish.

6.5.5. Within six months from the date of grant of this licence, the licensee shall determine normal levels for ammonia, BOD, conductivity, pH, TOC and temperature and trigger levels for TOC, pH, and conductivity for the water entering the stormwater holding and settling ponds. Within six months from the date of grant of this licence, the licensee shall submit to the Agency for its agreement a proposal outlining the measures to be implemented when such trigger levels are reached. This proposal shall take into account the water quality in the receiving waters upgradient of the landfill. No stormwater shall be discharged to the White River when the quality exceeds these trigger levels.

6.5.6. All flow meters shall be calibrated, operated and maintained as necessary so they will accurately reflect both the effluent discharge and the receiving water flow.

6.5.7 The equipment, including backup equipment, specified in Table D.6.5: Leachate Treatment Plant Control of this licence, shall be provided on-site. All treatment/abatement control and monitoring equipment shall be calibrated and maintained at all times when in use, in accordance with the manufacturer's instructions.

6.6. Trigger Level for PM₁₀

- 6.6.1. The trigger level for PM₁₀ from the facility measured at any location on the boundary of the facility is:-
- a) PM₁₀ greater than 50µg/m³ for a daily sample.
- 6.7 Emission limit values for emissions to waters in this licence shall be interpreted in the following way:-
- a) Continuous monitoring.
No flow value shall exceed the specified limit;
 - b) Non-Continuous monitoring.
Eight out of ten consecutive results, calculated as daily mean concentration or mass emission values on the basis of flow proportional composite sampling shall not exceed 1.2 times the emission limit value; and
 - c) No grab sample shall exceed 1.2 times the emission limit value.
- 6.8 Disposal of leachate (prior to commissioning of the leachate treatment plant or in the event of a breakdown in the operation of the plant).
- 6.8.1 Unless otherwise agreed in advance with the Agency, leachate stored in either leachate storage lagoon shall be periodically removed from the facility for treatment at either Castletroy WWTP or Newcastle West WWTP.
 - 6.8.2 No substance shall be present in emissions to sewer in such concentrations as would constitute a danger to maintenance personnel working in the sewerage system or as would be damaging to the fabric of the sewer or as would interfere with the biological functioning of a downstream wastewater treatment plant.
 - 6.8.3 No emission to sewer shall take place which gives rise to any reaction within the sewer or to the liberation of by-products which may be of environmental significance. In particular the emission shall not contain any liquid matter (including petroleum spirits or organic solvents) or thing which is or may be liable to set or congeal at average sewer temperature or is capable of giving off any flammable or explosive gas or any acid, alkali or other substance in sufficient concentration to cause corrosion to sewer pipes, penstock and sewer fittings or the general integrity of the sewer.

REASON: To control emissions from the facility and provide for the protection of the environment.

CONDITION 7 NUISANCE CONTROL

- 7.1 The licensee shall ensure that vermin, birds, flies, mud, dust and litter do not give rise to nuisance at the facility or in the immediate area of the facility. Any method used by the licensee to control any such nuisance shall not cause environmental pollution.
- 7.2 The licensee shall ensure that the activities shall be carried out in a manner such that odours do not result in significant impairment of, or significant interference with amenities or the environment beyond the facility boundary.
- 7.3 The road network in the vicinity of the facility shall be kept free from any debris caused by vehicles entering or leaving the facility. Any such debris or deposited materials shall be removed without delay.
- 7.4 Litter Control

- 7.4.1 Litter fencing shall be provided and maintained around the perimeter of the active tipping area.
- 7.4.2 All litter control infrastructure shall be inspected on a daily basis. The licensee shall remedy any defect in the litter netting as follows:-
- a) A temporary repair shall be made by the end of the working day; and
 - b) A repair to the standard of the original netting shall be undertaken within three working days.
- 7.4.3 All loose litter or other waste, placed on or in the vicinity of the facility, other than in accordance with the requirements of this licences, shall be removed, subject to the agreement of the landowners, immediately and in any event by 10.00am of the next working day after such waste is discovered.
- 7.4.4 The licensee shall ensure that all vehicles delivering waste to and removing waste and materials from the facility are appropriately covered.
- 7.5 Dust Control
- 7.5.1 In dry weather, site roads and any other areas used by vehicles shall be sprayed with water as and when required to minimise airborne dust nuisance.
- 7.6 Prior to exiting the facility, all waste vehicles shall use the wheelwash.
- 7.7 Bird Control
- 7.7.1 Birds shall be prevented from gathering on and feeding at the facility by the use of birds of prey and/or other bird scaring techniques. The birds of prey and/or other techniques shall maintain their presence every day, from before dawn to after dark, until the waste activities cease and all the waste is capped to the written satisfaction of the Agency. The use of gas operated bird scaring devices is prohibited at the facility.
- 7.8 Noise/Disturbance
- The licensee shall ensure the following:
- 7.8.1 That low sound level plant is used on site.
- 7.8.2 All heavy machinery and mechanical plant used on site are fitted with acoustic panels and acoustic mufflers (exhaust silencers).

REASON: To provide for the control of nuisances.

CONDITION 8 MONITORING

- 8.1 The licensee shall carry out such monitoring and at such locations and frequencies as set out in *Schedule D: Monitoring*, of this licence and as specified in this licence. Unless otherwise specified by this licence, all environmental monitoring shall commence no later than two months after the date of grant of this licence.
- 8.2 The licensee shall amend the frequency, locations, methods and scope of monitoring as required by this licence only upon the written instruction of the Agency and shall provide such information concerning such amendments as may be requested in writing by the Agency. Such alterations shall be carried out within any timescale nominated by the Agency.

- 8.3 Monitoring and analysis equipment shall be operated and maintained in accordance with the manufacturers' instructions (if any) so that all monitoring results accurately reflect any emission, discharge or environmental parameter.
- 8.4 The licensee shall provide safe and permanent access to all on-site sampling and monitoring points and to off-site points as required by the Agency.
- 8.5 Landfill Gas
- 8.5.1 The licensee shall provide and maintain a permanent gas monitoring system in the site office.
- 8.5.2 All landfill gas monitoring equipment, other than permanent monitoring systems within buildings, shall be certified as being intrinsically safe.
- 8.5.3 Within one month from the date of grant of this licence, the licensee shall submit a proposal to the Agency for agreement to monitor surface methane emissions from capped and uncapped areas. This proposal shall as a minimum contain the methodologies to be used and frequency of monitoring.
- 8.5.4 The licensee shall carry out a quarterly review of landfill gas control measures in place at the facility. This shall include an update on existing landfill gas control infrastructure (including operational status, number of vents connected and not connected to the landfill gas collection system, quantity of gas collected and flared/utilised, and estimated quantity of landfill gas being produced).
- 8.6 Groundwater Monitoring
- 8.6.1 Subject to the agreement of the well owners, all private wells within 500m upgradient and 1km downgradient of the facility shall be included in the monitoring programme set out in *Schedule D: Monitoring*, of this licence.
- 8.6.2 In the event that monitoring of private wells indicate that the facility is affecting the quantity and/or quality of the water supply this shall be treated as an incident. Within six months from the date of grant of this licence, the licensee shall submit to the Agency for its agreement, proposals for the provision of any alternative supply of water to those affected.
- 8.7 Meteorological Monitoring
- 8.7.1 The licensee shall provide and maintain a meteorological station at the facility capable of monitoring the parameters listed in *Schedule D: Monitoring* of this licence.
- 8.8 Topographical Survey
- 8.8.1 A topographical survey shall be carried out annually. The survey shall include a measurement of the remaining available void space. It shall be repeated annually thereafter. The survey shall be in accordance with any written instructions issued by the Agency.
- 8.9 Stability Assessment
- 8.9.1 A stability assessment of the side slopes of the facility shall be carried out annually.
- 8.10 Nuisance Monitoring
- 8.10.1 The licensee shall, on a daily basis, inspect the facility and its immediate surrounds for nuisances caused by litter, vermin, birds, flies, mud, dust and odours.
- 8.11 Odour monitoring

- 8.11.1 The licensee shall inspect the facility, its environs and odour sensitive locations daily for nuisances caused by odours.
- 8.11.2 As part of the odour control programme in place at the facility, the licensee shall carry out a monthly review of odour control measures in place at the facility. This shall include:
- (i) consideration of odour complaints received (including details and nature of the complaints, times and weather conditions);
 - (ii) details of any monitoring carried out (including to validate complaints and identify the source of the complaint and actions taken, where relevant); and
 - (iii) recommendations to deal with odour problems and implementation of these recommendations.

The licensee shall maintain these reports on site and forward them to the Agency on request.

REASON: To ensure compliance with the conditions of this licence by provision of a satisfactory system of monitoring of emissions.

CONDITION 9 CONTINGENCY ARRANGEMENTS

9.1. In the event of an incident the licensee shall immediately:-

- a) Identify the date, time and place of the incident;
- b) Carry out an immediate investigation to identify the nature, source and cause of the incident and any emission arising therefrom;
- c) Isolate the source of any such emission;
- d) Evaluate the environmental pollution, if any, caused by the incident;
- e) Identify and execute measures to minimise the emissions/malfunction and the effects thereof; and
- f) Provide a proposal to the Agency for its agreement within one month of the incident occurring to:-
 - a) Identify and put in place measures to avoid reoccurrence of the incident; and
 - b) Identify and put in place any other appropriate remedial action.

9.2. The licensee shall maintain written Emergency Response Procedures (ERP) at the facility. The ERP shall address any emergency situations which may originate on the facility and shall include provision for minimising the effects of any emergency on the environment. This shall include a risk assessment to determine the requirements at the facility for fire fighting and fire water retention facilities. The Fire Authority shall be consulted by the licensee during this assessment.

9.3. The licensee shall have in storage an adequate supply of containment booms and/or suitable absorbent material to contain and absorb any spillage at the facility. Once used the absorbent material shall be disposed of at an appropriate facility.

9.4. Emergencies

9.4.1. All significant spillages occurring at the facility shall be treated as an emergency and immediately cleaned up and dealt with so as to alleviate their effects.

- 9.4.2. No waste shall be burnt within the boundaries of the facility. A fire at the facility shall be treated as an emergency and immediate action shall be taken to extinguish it and notify the appropriate authorities.
- 9.4.3. In the event that monitoring of local wells indicates that the facility is having a significant adverse effect on the quantity and/or quality of the water supply this shall be treated as an emergency and the licensee shall provide an alternative supply of water to those affected.
- 9.4.4. In the event that monitoring of the slide slopes of the facility indicate that there may be a risk of slope failure this will be treated as an emergency.

<i>REASON: To ensure compliance with the conditions of this licence by provision of a satisfactory system of monitoring of emissions.</i>

CONDITION 10 RECORDS

10.1 The licensee shall keep the following documents at the facility office:-

- a) The current waste licence relating to the facility;
- b) The current EMS for the facility;
- c) The previous year's AER for the facility; and
- d) All written procedures produced by the licensee which relate to the licensed activities.

10.2 The licensee shall maintain a written record for each load of waste arriving at the facility, excluding those arriving at the Civic Waste Facility. The licensee shall record the following:-

- a) The date;
- b) The name of the carrier (including if appropriate, the waste carrier registration details);
- c) The vehicle registration number;
- d) The name of the producer(s)/collector(s) of the waste as appropriate;
- e) The name of the waste facility (if appropriate) from which the load originated including the waste licence or waste permit register number;
- f) A description of the waste including the associated EWC codes;
- g) The quantity of the waste, recorded in tonnes;
- h) The name of the person checking the load; and
- i) Where loads or wastes are removed or rejected, details of the date of occurrence, the types of waste and the facility to which they were removed.

10.3 Written Records

The following written records shall be maintained by the licensee:-

- a) The types and quantities of waste recovered and disposed of at the facility each year. These records shall include the relevant EWC Codes;
- b) All training undertaken by facility staff;
- c) Results from all integrity tests of bunds and other structures and any maintenance or remedial work arising from them;
- d) Details of all nuisance inspections;

- e) The names and qualifications of all persons who carry out all sampling and monitoring as required by this licence and who carry out the interpretation of the results of such sampling and monitoring; and
 - f) Maintenance records in accordance with the manufacturer's recommendations for the landfill gas flare and utilisation plant (once installed) at the facility.
- 10.4 The licensee shall maintain a written record of all complaints relating to the operation of the facility. Each such record shall give details of the following:-
- a) Date and time of the complaint;
 - b) The name of the complainant;
 - c) Details of the nature of the complaint;
 - d) Actions taken on foot of the complaint and the results of such actions; and
 - e) The response made to each complainant.
- 10.5 A written record shall be kept of each consignment of leachate and/or contaminated stormwater removed from the facility. The record shall include the following:-
- a) The name of the carrier;
 - b) The date and time of removal of leachate/contaminated stormwater from the facility;
 - c) The volume of leachate/contaminated stormwater, in cubic metres, removed from the facility on each occasion;
 - d) The name and address of the Waste Water Treatment Plant to which the leachate/contaminated stormwater was transported; and
 - e) Any incidents or spillages of leachate/contaminated stormwater during its removal or transportation.
- 10.6 A written record shall be kept for each load of waste departing from the Civic Waste Facility. The following shall be recorded:-
- a) The name of the carrier;
 - b) The vehicle registration number;
 - c) The destination of the waste (facility name and waste licence/permit number as appropriate);
 - d) A description of the waste (if recovered or rejected waste, the specific nature of the waste);
 - e) The quantity of waste, recorded in tonnes;
 - f) The name of the person checking the load; and
 - g) The time and date of departure.
- 10.7 A written record shall be kept at the facility of the programme for the control and eradication of vermin and fly infestations at the facility. These records shall include as a minimum the following:-
- a) The date and time during which spraying of insecticide is carried out;
 - b) Contractor details;
 - c) Contractor logs and site inspection reports;
 - d) Details of the rodenticide(s) and insecticide(s) used;
 - e) Operator training details;
 - f) Details of any infestations;
 - g) Mode, frequency, location and quantity of application; and

- h) Measures to contain sprays within the facility boundary.

REASON: To provide for the keeping of proper records of the operation of the facility.

CONDITION 11 REPORTS AND NOTIFICATIONS

11.1 Unless otherwise agreed by the Agency, all reports and notifications submitted to the Agency shall:-

- a) Be sent to the Agency's Regional Inspectorate in Cork;
- b) Comprise one original and three copies unless additional copies are required;
- c) Be formatted in accordance with any written instruction or guidance issued by the Agency;
- d) Include whatever information as is specified in writing by the Agency;
- e) Be identified by a unique code, indicate any modification or amendment, and be correctly dated to reflect any such modification or amendment;
- f) Be submitted in accordance to the relevant reporting frequencies specified by this licence, such as in *Schedule E: Recording and Reporting to the Agency*, of this licence;
- g) Be accompanied by a written interpretation setting out their significance in the case of all monitoring data; and
- h) Be transferred electronically to the Agency's computer system if required by the Agency.

11.2 In the event of an incident occurring on the facility, the licensee shall:-

- a) Notify the Agency as soon as practicable and in any case not later than 1000 hrs the following working day after the occurrence of any incident;
- b) Submit a written record of the incident, including all aspects described in Condition 9.1(a-e), to the Agency as soon as practicable and in any case within five working days after the occurrence of any incident;
- c) In the event of any incident which relates to discharges to surface/sewer water, notify the Shannon Regional Fisheries Board as soon as practicable and in any case not later than 10.00 hrs on the following working day after such an incident; and
- d) Should any further actions be taken as a result of an incident occurring, the licensee shall forward a written report of those actions to the Agency as soon as practicable and no later than ten days after the initiation of those actions.

11.3 Waste Recovery Reports

Within six months of the date of grant of this licence, a report examining waste recovery options shall be submitted to the Agency for its agreement. This report shall address methods to contribute to the achievement of the recovery targets stated in national and European Union waste policies and shall include the following:-

- a) Proposals for the contribution of the facility to the achievement of targets for the reduction of biodegradable waste to landfill, going to landfills as specified in the Landfill Directive;
- b) The treatment of waste as required by the Landfill Directive;
- c) The separation of recyclable materials from the waste;
- d) The recovery of Construction and Demolition Waste;
- e) Inert waste to be used for cover/restoration material at the facility; and
- f) Proposals regarding the utilisation of heat/energy from the gas utilisation plant.

11.4 Reports relating to Facility Operations

- 11.4.1. European Pollution Emission Register (EPER) reporting shall be in accordance with any relevant guidance issued by the Agency.

11.5 Monitoring Locations

- 11.5.1 Within six months of the date of grant of this licence, the licensee shall submit to the Agency an appropriately scaled drawing(s) showing all the monitoring locations that are stipulated in this licence. The drawing(s) shall include the reference code of each monitoring point.

11.6 Annual Environmental Report

- 11.6.1 The licensee shall submit to the Agency for its agreement by January 31st 2004, and within one month of the end of each year thereafter, an Annual Environmental Report (AER).
- 11.6.2 The AER shall include as a minimum the information specified in *Schedule G: Content of Annual Environmental Report* of this licence and shall be prepared in accordance with any relevant written guidance issued by the Agency.

REASON: To provide for proper reports to and notifications to the Agency.

CONDITION 12 CHARGES AND FINANCIAL PROVISIONS

12.1 Agency Charges

- 12.1.1 The licensee shall pay to the Agency an annual contribution of €35,681.68 or such sum as the Agency from time to time determines, towards the cost of monitoring the activity or otherwise in performing any functions in relation to the activity, as the Agency considers necessary for the performance of its functions under the Waste Management Act, 1996. The licensee shall in 2004 and subsequent years, not later than January 31 of each year, pay to the Agency this amount updated in accordance with changes in the Public Sector Average Earnings Index from the date of the licence to the renewal date. The updated amount shall be notified to the licensee by the Agency. For 2003, the licensee shall pay a pro rata amount from the date of this licence to 31st December. This amount shall be paid to the Agency within one month of the date of grant of this licence.
- 12.1.2 In the event that the frequency or extent of monitoring or other functions carried out by the Agency needs to be increased the licensee shall contribute such sums as determined by the Agency to defraying its costs.

12.2 Financial Provision for Closure, Restoration and Aftercare

- 12.2.1 Within six months the licensee shall arrange for a risk assessment of the facility to be carried out. The risk assessment shall have particular regard to any accidents, emergencies, or other incidents, which might occur at the facility and their effect on the environment. The risk assessment shall include a comprehensive and fully costed Environmental Liabilities Risk Assessment for the facility including the cost of making such Financial Provision as is required for the purposes of Section 53(1) of the Waste Management Act 1996. The financial provision shall include the costs entered into or incurred in the carrying on of the activities to which this licence relates or will relate including the closure, restoration, remediation and aftercare of the facility.
- 12.2.2 The licensee shall, within nine months establish and maintain a fund, or provide a written guarantee for the costs determined under Condition 12.2.1. The type of fund

established and means of its release/recovery shall be agreed by the Agency prior to its establishment.

12.2.3 The licensee shall within two weeks of purchase, renewal or revision of the financial provision required under Condition 12.2.2, forward to the Agency written proof of such indemnity.

12.2.4 The licensee shall provide a statement in writing to the Agency on an annual basis as part of the AER in respect of the determination of charges for the disposal of waste. The statement shall be in accordance with the requirements of S.I. 337 of 2002 European Communities (Amendment of Waste Management (Licensing) Regulations, 2000) Regulation, 2002.

12.2.5 Unless otherwise agreed any revision to the fund shall be computed using the following formula:

$$\text{Cost} = (\text{ECOST} \times \text{WPI}) + \text{CiCC}$$

Where:

Cost = Revised restoration and aftercare cost

ECOST = Existing restoration and aftercare cost

WPI = Appropriate Wholesale Price Index [Capital Goods, Building & Construction (i.e. Materials & Wages) Index], as published by the Central Statistics Office, for the year since last closure calculation/revision.

CiCC = Change in compliance costs as a result of change in site conditions, changes in law, regulations, regulatory authority charges, or other significant changes.

REASON: To provide for adequate financing for monitoring and financial provisions for measures to protect the environment.

SCHEDULE A : Waste Acceptance

A.1 Waste Acceptance

Table A.1 Waste Categories and Quantities for Disposal/Recovery at the facility.

Waste Type	Maximum (tonnes per annum) ^{Note 1}
Household	72,000
Commercial	39,000
Sewage sludge	4,770
Industrial non-hazardous sludge	1,200
Industrial non-hazardous solids ^{Note 2}	11,000
Water treatment sludge	2,030
TOTAL FOR DISPOSAL	130,000
Green waste for composting	Note 3
Wood chippings	2,000
Automobile shredder residue ^{Note 4}	20,000
Soil/stones ^{Note 5}	30,000
Wastes accepted for storage at the civic waste facility prior to recycling, reuse or reclamation	5,000
TOTAL FOR RECOVERY	57,000

Note 1: The quantities of the individual waste types may be adjusted only with the prior agreement of the Agency subject to the total waste quantity remaining the same.

Note 2: The once-off disposal of 3,000 tonnes of 'calcium phosphate/sand mixture or bonedust' shall be included in this waste type subject to the material being tested and proven to be non-hazardous to the satisfaction of the Agency.

Note 3: Limited to 1000m³ of compost and waste at any one time.

Note 4: This may be used as weekend cover subject to the material being tested and proven to be non-hazardous to the satisfaction of the Agency.

Note 5: These may be accepted for recovery for use as daily cover, in site construction works and landfill restoration.

SCHEDULE B : Specified Engineering Works

Specified Engineering Works
Development of the facility including preparatory works and lining.
Final capping.
Installation of Landfill Gas Management Infrastructure.
Installation of Leachate Management Infrastructure.
Installation of Surface Water Management Infrastructure.
Any other works notified in writing by the Agency.

SCHEDULE C : Emission Limits

C.1 Noise Emissions: (Measured at any noise sensitive location).

Day Db(A) L _{Aeq} (30 minutes)	Night dB(A) L _{Aeq} (30 minutes)
55	45

C.2 Landfill Gas Concentration Limits: (Measured in any building on or adjacent to the facility).

Methane	Carbon Dioxide
20 % LEL (1% v/v)	1.5 % v/v

C.3 Dust Deposition Limits: (Measured at the monitoring points indicated in *Table D.1.1*).

Level (mg/m ² /day) ^{Note 1}
350

Note 1: 30 day composite sample with the results expressed as mg/m²/day.

C.4 Surface Water Discharge Limits: Measured at the outlet from the stormwater settling ponds.

Level (Suspended Solids mg/l)
35

C.5 Emission Limit Values for Landfill Flare/Utilisation Plant

Emission Point Reference numbers: Outlet of enclosed flare and of utilisation plant (when installed).

Volume to be emitted: 3000m³/hr

Minimum discharge height: 5m (unless results from modelling suggests otherwise).

Parameter	Flare (enclosed) Emission Limit Value ^{Note 1}	Utilisation Plant Emission Limit Value ^{Note 1}
Nitrogen oxides (NO _x)	150 mg/m ³	500 mg/m ³
CO	50 mg/m ³	1400 mg/m ³
Particulates	Not applicable	130 mg/m ³
Total Volatile Organic Compounds (VOCs) as carbon	10 mg/m ³	1000 mg/m ³
Total non-methane VOCs	Not applicable	75 mg/m ³
Hydrogen Chloride	50 mg/m ³ (at mass flows > 0.3 kg/h)	50 mg/m ³ (at mass flows > 0.3 kg/h)
Hydrogen Fluoride	5 mg/m ³ (at mass flows > 0.05 kg/h)	5 mg/m ³ (at mass flows > 0.05 kg/h)

Note 1: Dry gas referenced to 5% oxygen by volume for utilisation plants and 3% oxygen by volume for flares.

C.6 Emission Limits for Treated Leachate Discharged to Surface Water

Emission Point Reference No.: Treated leachate discharge point
 Volume to be emitted: Maximum in any one day: 120m³/day
 Maximum rate per second: 1.38 l/s
 Time of emission: Minimum river flow in White River of 50 l/s and must be greater than 40 dilutions of effluent at all times.

Parameter	Limit
	(all units in mg/l except pH)
pH	6-8
BOD	25
Suspended Solids	35
Total P (as P)	2
Total Ammonia (as N)	3

C.7 Emission Limits for Leachate Tankered to Wastewater Treatment Plant

Volume to be emitted: Maximum in any one day: 120 m³ /day (This shall be a maximum of 60m³/day to Castletroy WWTP and 60m³/day to Newcastle West WWTP, unless otherwise agreed in advance by both the Sanitary Authority and the Agency).

Parameter	Emission Limit Value
	Grab Sample (mg/l)
pH	6-9
BOD	300
COD	750
Suspended solids	400
Total Ammonia (as N)	100

SCHEDULE D : Monitoring

D.1 Monitoring Locations

Monitoring locations shall be those as set out in Table D.1.1 and as shown in Drawing DG0002 Rev. A02 entitled "Monitoring Points" received 04/02/03 as part of response to the Agency's Article 14 notice.

Table D.1.1 Monitoring Locations

Landfill Gas within Waste and Boundary Locations	Landfill Gas Flare/Utilisation Plant	Dust Deposition /PM ₁₀	Odour	Noise	Surface Water	Ground Water
Stations	Stations	Stations	Stations	Stations	Stations	Stations
1 point per cell.	Inlet/outlet of enclosed flare	D1-D4 (dust deposition)	Four odour sensitive locations to be agreed in advance with the Agency.	M1 – M11	S1, S2, S6, S7, S8, SW1, SW2 and SW3	SA1, SA2, GW5, SA5, BH2, BH10, BH13, Collins Well (new)
Perimeter locations C1-C15	Inlet/outlet of utilisation plant once installed	D1, D2 and D4 (PM ₁₀)	Location adjacent to facility office.		Inlet and Outlet (SW4) of surface water retention pond	Private wells
Site office.					A, B, C, D. ^{Note 1}	
Leachate Monitoring Locations						
Treated Leachate Discharge (see Table D.6.4)		Raw leachate storage lagoon (see Table D.6.1)		Level monitoring only – three locations in each of cells 5 to 13 & three locations within bentonite cut-off wall (cells 1-4).		

Note 1: Annual biological monitoring locations on the White River.

D.2 Landfill Gas

Table D.2.1 Landfill Gas Monitoring Parameters, Frequency and Technique

Parameter	Monitoring Frequency		Analysis Method ^{Note 1} /Technique ^{Note 2}
	Gas Boreholes/ Vents/Wells	Site Office	
Methane (CH ₄) % v/v	Monthly	Weekly	Infrared analyser/flame ionisation detector
Carbon dioxide (CO ₂) % v/v	Monthly	Weekly	Infrared analyser/flame ionisation detector
Oxygen(O ₂) % v/v	Monthly	Weekly	Electrochemical cell
Atmospheric Pressure	Monthly	Weekly	Standard
Temperature	Monthly	Weekly	Standard

Note 1: All monitoring equipment used should be intrinsically safe.

Note 2: Or other methods agreed in advance with the Agency.

D.3 Dust/Odour Monitoring

Table D.3.1 Dust Monitoring Frequency and Technique

Parameter (mg/m ² /day)	Monitoring Frequency	Analysis Method/Technique
Dust	Three times a year ^{Note 1}	Standard Method ^{Note 2}
PM₁₀	Annually	Note 3
Odour/Trace constituents of landfill gas	Quarterly	Note 4.

Note 1: Twice during the period May to September.

Note 2: Standard method VDI2119 (Measurement of Dustfall, Determination of Dustfall using Bergerhoff Instrument (Standard Method) German Engineering Institute). Any modifications to eliminate interference due to algae growth in the gauge should be reported to the Agency.

Note 3: As described in prEN12341 or an equivalent agreed with the Agency.

Note 4: Analysis for organics, mercaptans, organic acids and hydrogen sulphide by standard methods.

D.4 Noise

Table D.4.1 Noise Monitoring Frequency and Technique

Parameter	Monitoring Frequency	Analysis Method/Technique
L(A)_{EQ} [30 minutes]	Biannual	Standard ^{Note 1}
L(A)₁₀ [30 minutes]	Biannual	Standard ^{Note 1}
L(A)₉₀ [30 minutes]	Biannual	Standard ^{Note 1}
Frequency Analysis (1/3 Octave band analysis)	Biannual	Standard ^{Note 1}

Note 1: "International Standards Organisation. ISO 1996. Acoustics - description and Measurement of Environmental noise. Parts 1, 2 and 3."

D.5 Meteorological Monitoring

Table D.5.1 Meteorological Monitoring: Data to be obtained from the on-site meteorological station.

Parameter	Monitoring Frequency	Analysis Method/Technique
Precipitation Volume	Daily	Standard
Temperature (min/max.)	Daily	Standard
Wind Force and Direction	Daily	Standard
Evaporation	Daily	Standard
Evapotranspiration^{Note 1}	Daily	Standard
Humidity	Daily	Standard
Atmospheric Pressure^{Note 1}	Daily	Standard

Note 1: Monitoring frequency for these parameters may be decreased with the agreement of the Agency.

D.6 Surface Water, Groundwater and Leachate

Table D.6.1 Water and Leachate - Parameters / Frequency

Parameter ^{Note 1}	Surface Water ^{Note 2}	Groundwater	Leachate ^{Note 3} (raw leachate lagoon)
	Monitoring Frequency	Monitoring Frequency	Monitoring Frequency
Visual Inspection/Odour ^{Note 4}	Weekly	Quarterly ^{Note 5}	Quarterly
Groundwater Level	Not Applicable	Monthly	Not Applicable
Leachate Level	Not Applicable	Not Applicable	Weekly
Ammoniacal Nitrogen	Quarterly	Quarterly ^{Note 5}	Annually
BOD	Quarterly	Not Applicable	Annually
COD	Quarterly	Not Applicable	Annually
Chloride	Quarterly	Quarterly ^{Note 5}	Annually
Dissolved Oxygen	Quarterly	Quarterly	Not Applicable
Electrical Conductivity	Quarterly	Quarterly ^{Note 5}	Annually
pH	Quarterly	Quarterly ^{Note 5}	Annually
Total Suspended Solids	Quarterly	Not Applicable	Not Applicable
Temperature	Quarterly	Quarterly ^{Note 5}	Quarterly
Metals / non metals ^{Note 6}	Annually	Annually ^{Note 5}	Annually
Cyanide (Total)	Not Applicable	Annually	Annually
Fluoride	Not Applicable	Annually	Annually
List I/II organic substances ^{Note 7}	Once off ^{Note 8}	Annually ^{Note 8}	Once off ^{Note 8}
Mercury	Annually	Annually	Annually
Sulphate	Annually	Annually	Annually
Total Alkalinity	Annually	Annually	Not applicable
Total P/Orthophosphate	Annually	Annually	Annually
Total Oxidised Nitrogen	Annually	Annually ^{Note 5}	Annually
Total Organic Carbon	Not Applicable	Quarterly ^{Note 5}	Not Applicable
Residue on evaporation	Not Applicable	Annually ^{Note 5}	Not Applicable
Biological Assessment	Annually ^{Note 9}	Not Applicable	Not Applicable
Total & Faecal Coliforms	Not applicable	Annually ^{Note 5}	Not applicable

Note 1: All the analysis shall be carried out by a competent laboratory using standard and internationally accepted procedures.

Note 2: See Tables D.6.2 and D.6.3 for flow measurement of the White River and monitoring of stormwater settling ponds.

Note 3: See Table D.6.4 for monitoring of treated leachate discharge.

Note 4: Where there is evident gross contamination of leachate, additional samples should be analysed.

Note 5: All private wells in accordance with Condition 8.6 to be analysed on an annual basis for these parameters only. Iron and manganese should be included as part of the metal analysis. If there is evidence of bacterial contamination, the analysis at upgradient and downgradient monitoring points should include enumeration of total bacteria at 22°C and 37°C and faecal streptococci.

Note 6: Metals and elements to be analysed by AA/ICP should include as a minimum: boron, cadmium, calcium, chromium (total), copper, iron, lead, magnesium, manganese, nickel, potassium, sodium and zinc.

Note 7: Samples screened for the presence of organic compounds using Gas Chromatography / Mass Spectrometry (GC/MS) or other appropriate techniques and using the list I/II Substances from EU Directive 76/464/EEC and 80/68/EEC as a guideline. Recommended analytical techniques include: volatiles (US Environmental Protection Agency method 524 or equivalent), semi-volatiles (USEPA method 525 or equivalent, and pesticides (USEPA method 608 or equivalent).

Note 8: Annually for groundwater (SA1, GW5 and Collins Well (new)) and treated leachate discharge. Once off for surface water (S1 and S6) and leachate (inlet to raw leachate lagoon).

Note 9: Appropriate biological methods (such as EPA Q-Rating System) to be used for the assessment of rivers and streams.

Table D.6.2 Flow measurements of surface water

Parameter	Location	Monitoring Frequency	Analysis Method/Technique
Flow measurements	Weir installed on White River	Continuous	Standard method ^{Note 1,2}

Note 1: To be agreed in advance with the Agency.

Note 2: Back up equipment to be held on-site e.g. staff gauge.

Table D.6.3 Monitoring of Stormwater settling ponds

Location / Parameter	Monitoring Frequency	Analysis Method/Technique ^{Note 1}
Inlet to Stormwater pond		
Flow	Continuous	Flow meter / recorder
TOC	Continuous	TOC meter / recorder
pH	Continuous	pH meter / recorder
Conductivity	Continuous	Conductivity Meter / recorder
Suspended Solids	Weekly	Gravimetric
Ammonia	Weekly	Standard Methods
SW4 (outlet from stormwater pond)		
Flow	Continuous	Flow meter / recorder
Visual inspection	Daily	Not applicable
Suspended Solids	Weekly	Gravimetric

Note 1: Or an equivalent method acceptable to the Agency.

Table D.6.4 Monitoring of Treated Leachate Discharge - Parameters /Frequency

Parameter	Monitoring Frequency	Analysis Method/Technique ^{Note 1}
Treated Effluent Flow	Continuous	On-line flow meter with recorder
pH	Continuous	pH electrode/meter and recorder
Temperature	Daily	Standard Methods
Chemical Oxygen Demand	Weekly ^{Note 2,3}	Standard Methods
CBOD	Weekly ^{Note 2,3}	Standard Methods ^{Note 4}
Suspended Solids	Weekly ^{Note 2,3}	Standard Methods
Total Ammonia (as N)	Weekly ^{Note 2,3}	Standard Methods
Nitrite /TON (as N)	Monthly ^{Note 2,3}	Standard Methods
Total Phosphorus	Monthly ^{Note 2,3}	Standard Methods
Toxicity ^{Note 5}	Biannual	To be agreed with the Agency
List I/II organic substances	Annually	^{Note 6}

Note 1: Or an equivalent method acceptable to the Agency

Note 2: Samples to be collected on a flow proportional composite sample basis

Note 3: The frequency, methods and scope of monitoring, sampling and analysis may be amended following evaluation of the test results.

Note 4: Analysis for Carbonaceous BOD shall include the addition of a nitrification inhibitor.

Note 5: The toxicity of the undiluted treated leachate to *Daphnia magna* and *Lemna minor* shall be determined unless otherwise agreed with the Agency.

Note 6: Samples screened for the presence of organic compounds using Gas Chromatography / Mass Spectrometry (GC/MS) or other appropriate techniques and using the list I/II Substances from EU Directive 76/464/EEC and 80/68/EEC as a guideline.

Recommended analytical techniques include: volatiles (US Environmental Protection Agency method 524 or equivalent), semi-volatiles (USEPA method 525 or equivalent, and pesticides (USEPA method 608 or equivalent).

Table D.6.5 Leachate Treatment Plant Control ^{Note 1}

Control parameter	Equipment	Equipment maintenance	Backup Equipment
Extended Aeration Lagoon			
Effluent Transfer	Submersible pumps	Daily visual check	Spares held on site
Dissolved Oxygen	Aerators, sub-surface mixers	Daily visual check	Spares to be held on site
Dissolved Oxygen	DO meter	Daily visual check	Portable DO meter
Clarifier			
Return sludge	Sludge return pumps	Daily visual check	Stand-by pumps
Effluent Transfer	Gravity flow /forward feed pumps	Daily visual check	Spares held on site
Settling Lagoon, Sand Bed Filter & Peat Bed Filter			
Flow	Distribution network	Daily visual check	Spares held on site

Note 1: The parameters and equipment used for the control of the leachate treatment plant may be amended following evaluation of results.

D.7 Landfill Gas Enclosed Flare/Utilisation Plant

Location: Enclosed flare and utilisation plant (note exact location of utilisation plant to be agreed with the Agency in advance).

Table D.7.1 Landfill Gas Enclosed Flare/Utilisation Plant Parameters and Monitoring Frequency

Parameter	Flare (enclosed)	Utilisation Plant	Analysis Method ^{Note 1} /Technique ^{Note 2}
	Monitoring Frequency	Monitoring Frequency	
Inlet			
Methane (CH₄) % v/v	Continuous	Weekly	Infrared analyser/flame ionisation detector/thermal conductivity
Carbon dioxide (CO₂)% v/v	Continuous	Weekly	Infrared analyser/ thermal conductivity
Oxygen (O₂) % v/v	Continuous	Weekly	Electrochemical/thermal conductivity
Total Sulphur	Annually	Annually	Ion chromatography
Total Chlorine	Annually	Annually	Ion chromatography
Total Fluorine	Annually	Annually	Ion Selective Electrode
Process Parameters			
Combustion Temperature	Continuous	Quarterly	Temperature Probe/datalogger

Outlet			
CO	Continuous	Continuous ^{Note 3}	Flue gas analyser/datalogger
NOx	Annually	Continuous ^{Note 3}	Flue gas analyser
SO ₂	Annually	Annually	Flue gas analyser
Total VOCs as carbon	Annually	Annually	Flame ionisation
Total non-methane VOCs	Not applicable	Annually	Adsorption-thermal desorption
Particulates	Not applicable	Annually	Isokinetic/Gravimetric
Hydrochloric acid	Annually	Annually	Impinger / Ion Chromatography
Hydrogen fluoride	Annually	Annually	Impinger / Ion Chromatography

Note 1: All monitoring equipment used should be intrinsically safe.

Note 2: Or other methods agreed in advance with the Agency.

Note 3: Continuous monitoring of carbon monoxide and nitrogen oxides is required. Monitoring of one of these parameters may be reduced to quarterly with the prior agreement of the Agency.

D.8 Ecological Monitoring

Table D.8.1 Ecological Monitoring

Parameter	Monitoring Frequency	Method/
Ecological Monitoring	Annual	Note 1

Note 1: Ecological monitoring of the site and adjoining habitats to be undertaken. This shall pay particular attention to species listed in Volume 3 of the EIS which are protected under the Wildlife Act 1976, the EU habitats Directive and the EU Birds Directive.

D.9 Monitoring of Composting Process

Table D.9.1 Monitoring of Composting Process

Parameter	Monitoring ^{Note 1} Frequency	Analysis Method/Technique
Moisture Content	Weekly	Standard
Temperature (min/max.)	Daily	Standard
Oxygen	Daily	Standard

Note 1: Unless otherwise agreed with the Agency.

SCHEDULE E : Recording and Reporting to the Agency

Report	Reporting Frequency ^{Note 1}	Report Submission Date
Environmental Management System Updates	Annually	One month after the end of the year reported on.
Annual Environment Report (AER)	Annually	By 31 st January 2004 and one month after the end of each year thereafter.
Record of incidents	As they occur	Within five days of the incident.
Bund, tank and container integrity assessment	Every three years	Six months from the date of grant of licence and one month after end of the three year period being reported on.
Specified Engineering Works reports	As they arise	Prior to the works commencing.
Monitoring of landfill gas	Quarterly	Ten days after end of the quarter being reported on.
Monitoring of Surface Water Quality/Groundwater/Leachate	Quarterly	Ten days after end of the quarter being reported on.
Meteorological Monitoring	Annually	One month after end of the year being reported on.
Dust Monitoring	Three times a year	Ten days after the period being reported on
PM₁₀ Monitoring	Annually	One month after end of the year being reported on.
Biological Monitoring	Annually	One month after end of the year being reported on.
Ecological Monitoring	Annually	One month after end of the year being reported on.
Noise Monitoring	Annually	One month after end of the year being reported on.
Odour Monitoring	Quarterly	Ten days after end of the quarter being reported on.
Slope stability monitoring	Annually	One month after end of the year being reported on.
Topographical monitoring	Annually	One month after end of the year being reported on.
Any other monitoring	As they occur	Within ten days of obtaining results.

Note 1: Unless altered at the request of the Agency.

SCHEDULE F : Standards for Compost Quality

The following criteria are deemed a quality standard for the use of compost as a soil improver and should not be deemed as criteria for fertiliser. In addition N, P, K, NH₄-N, NO₃-N, pH and dry matter content should also be measured.

Compost shall be deemed unsatisfactory if more than 10% of samples fail the criteria below. No sample shall exceed 1.2 times the quality limit values set.

1. Maturity

Compost shall be deemed to be mature if it meets two of the following requirements:-

- C/N ratio ≤ 25 ;
- Oxygen uptake rate ≤ 150 mg O₂/kg volatile solids per hour;
- Germination of cress (*Lepidium sativum*) seeds and of radish (*Raphanus sativus*) seeds in compost must be greater than 90 percent of the germination rate of the control sample, and the growth rate of plants grown in a mixture of compost and soil must not differ more than 50 percent in comparison with the control sample; and
- Elimination of the following test organisms (used to evaluate composting system efficiency in removing plant pathogens and weed seeds during the composting process): Plasmodiophora brassicae, tobacco-mosaic-virus (TMV) and tomato seeds.

Guidance on test may be obtained from the German document LAGA M10 'Quality Criteria and Application Recommendations for Compost'.

2. Foreign Matter

Compost must not contain any sharp foreign matter measuring over a 2 mm dimension that may cause damage or injury to humans, animals and plants during or resulting from its intended use.

Foreign matter content as a percentage of oven-dried mass	≤ 1.5
Foreign matter, maximum dimensions, in mm	25

3. Trace Elements

Maximum Trace Element Concentration Limits for Compost ^{Note 2}

Trace Elements	(mg/kg, dry mass)
Arsenic (As) ^{Note 1}	15
Cadmium (Cd)	1.5
Chromium (Cr)	100
Copper (Cu)	100
Mercury (Hg)	1
Molybdenum (Mo) ^{Note 1}	5
Nickel (Ni)	50
Lead (Pb)	150
Selenium (Se) ^{Note 1}	2
Zinc (Zn)	350

Note 1: Monitoring of these parameters required if waste from an industrial source.

Note 2: The above alone should not be taken as an indication of suitability for addition to soil as the cumulative metal additions to soil should be first calculated.

4. Pathogens

Pathogenic organism content must not exceed the following limits:-

- the quantity of faecal coliforms must be $< 1,000$ Most Probable Number (MPN)/g of total solids calculated on a dry weight basis; and

b) there can be no salmonellae present (< 3 MPN/4g total solids).

5. Monitoring

The licensee shall monitor the compost product at least biannually. The licensee shall submit to the Agency for its agreement, prior to commencement of compost operations, details of methods of analyses and sample numbers.

SCHEDULE G : Content of the Annual Environmental Report

Annual Environmental Report Content
Reporting Period.
Waste activities carried out at the facility.
Quantity and Composition of waste received, disposed of and recovered during the reporting period and each previous year.
Calculated remaining capacity of the facility and year in which final capacity is expected to be reached.
Area occupied by waste.
Methods of deposition of waste.
Summary report on emissions.
Summary of results and interpretation of environmental monitoring.
Resource and energy consumption summary.
Proposed development of the facility and timescale of such development.
Volume of leachate produced and volume of leachate transported / discharged off-site.
Report on development works undertaken during the reporting period, and a timescale for those proposed during the coming year.
Report on restoration of completed cells/ phases.
Site survey showing existing levels of the facility at the end of the reporting period.
Estimated annual and cumulative quantities of landfill gas emitted from the facility.
Estimated annual and cumulative quantity of indirect emissions to groundwater.
Annual water balance calculation and interpretation.
Meteorological report.
Report on the progress towards achievement of the Environmental Objectives and Targets contained in previous year's report.
Schedule of Environmental Objectives and Targets for the forthcoming year.
Full title and a written summary of any procedures developed by the licensee in the year which relates to the facility operation.
Tank, pipeline and bund testing and inspection report.
Reported incidents and Complaints summaries.
Review of Nuisance Controls.
Reports on financial provision made under this licence, management and staffing structure of the facility, and a programme for public information.
Report on training of staff.
Any other items specified by the Agency.

Signed on behalf of the said Agency
on the 27th day of June, 2003

Ray Cullinane **Authorised Person**