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

Waste Licence	30-2
Register Number:	
Applicant:	Kilkenny County Council
Location of Facility:	Dunmore Landfill, Dunmore, Co. Kilkenny

INTRODUCTION

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

This licence is for the continued operation and development by Kilkenny County Council of a landfill at Dunmore, County Kilkenny. The landfill currently comprises of ten lined cells with provision for up to a further four cells to be developed. Restrictions have been placed on the types of waste to be accepted and disposed of at the facility with greater restrictions placed on waste to be disposed of at the most northerly cell (Cell 14). Construction waste containing asbestos will be allowed in accordance with the landfill directive and any technical guidance issued by the European Commission. The proposed development also provides for a new facility entrance from the N77, a Civic Waste Facility and a storage area for construction and demolition wastes accepted for reuse on site as cover/restoration material. The licence also provides for trial composting of green waste at the facility subject to a maximum of 1,000 m³ at any given time.

The facility is limited to accepting 40,000 tonnes per annum of waste for disposal. The licensee is required to install and maintain a landfill gas collection and flaring system, as well as leachate management infrastructure to facilitate the management and collection of leachate generated on site and subsequent transport off site to a suitable waste water treatment plant.

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 the conditions under which the licensee is required to operate and manage this facility.

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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 Kilkenny County Council, County Hall, John Street, Kilkenny to carry on the waste activities listed below at Dunmore Landfill, Dunmore, Co. Kilkenny subject to 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 the disposal of non-hazardous waste specified in Condition 1.4.
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 lagoons prior to its disposal off site at a suitable wastewater treatment plant.
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 non-hazardous waste specified in Condition 1.4.
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 in skips/containers 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 trial composting of waste accepted subject to a limit of 1,000 m ³ being present at any one time at the facility and subsequent to prior written approval from the Agency.
Class 3.	Recycling or reclamation of metals and metal compounds: This activity is limited to the collection of metals in specified containers and areas for recycling off site.
Class 4.	Recycling or reclamation of other inorganic materials: This activity is limited to the collection of materials for recycling off site and of

	construction and demolition waste to be used on site as cover material and in the restoration of cells.
Class 9.	Use of any waste principally as a fuel or other means to generate energy: This activity is limited to the use of landfill gas for the generation of electricity/energy.
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 lime treated sewage sludge and green waste as a soil conditioner in the restoration of capped cells.
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 construction and demolition waste collected on site as cover material and in the restoration of cells.
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 storage of waste on site prior to use/recycling on and off site as referred to above.

Part II: Activities Refused

In pursuance of the powers conferred on it by the Waste Management Act, 1996, the Environmental Protection Agency (the Agency) proposes, under Section 46(2) of the said Act to refuse the following classes of activities.

*Refused waste disposal activities, in accordance with the Third Schedule
of the Waste Management Act, 1996*

Class 2.	Land treatment, including biodegradation of liquid or sludge discards in soils: Reason: The blending of lime treated sewage sludge with soil for use in the landfill cap is covered by Class 10 of the Fourth Schedule.
Class 11.	Blending or mixture prior to submission to any activity referred to in a preceding paragraph of this Schedule. Reason: The proposed activities are covered by Class 13 of the Third Schedule and by Class 11 of the Fourth Schedule.
Class 12.	Repackaging prior to submission to any activity referred to in a preceding paragraph of this Schedule. Reason: The proposed activities are covered by Class 13 of the Third Schedule and by Class 13 of the Fourth Schedule.

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.
Animal waste	Carcasses, offal, skins & hides, bones, excrement, blood and paunch.
Annually	At approximately twelve monthly intervals.
Application	The application by the licensee for this waste licence.
Appropriate facility	A waste management facility, duly authorised under relevant law and technically suitable.
Attachment	Any reference to Attachments in this licence refers to attachments submitted as part of the waste licence application.
Biodegradable waste	Any waste that is capable of undergoing anaerobic or aerobic decomposition, such as food, garden waste, sewage sludge, paper and paperboard.
Buffer Zone	An area, between the cells where waste is deposited and the boundary of the facility, within which no waste shall be deposited.
Condition	A condition of this licence.
Construction and Demolition Waste	All wastes which arise from construction, renovation and demolition activities.
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	8.00 a.m. to 10.00 p.m.
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.
EIS	Environmental Impact Statement submitted as part of the application.
Emergency	Those occurrences defined in Condition 9.4

Emission Limits	Those limits, including concentration limits and deposition levels established in <i>Schedule D: Monitoring</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. The hours of operation of a facility are usually longer than the hours of waste acceptance to facilitate preparatory and completion works, such as the removal and laying of daily cover. Different activities within the facility, such as the landfill and the civic waste facility, may have different hours of waste acceptance.
Hours of Waste Acceptance	The hours during which the facility is authorised to accept waste. Different activities within the facility, such as the landfill and the civic waste facility, may have different hours of waste acceptance.
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	Kilkenny County Council.
List I/II Organics	Substances classified pursuant to EC Directives 76/464/EEC and 80/68/EEC.
Liquid Waste	Any waste in liquid form and containing less than 2% dry matter. Any waste 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.
Mobile Plant	Self-propelled machinery used for the emplacement of wastes or for the construction of specified engineering works.
Monthly	A minimum of twelve times per year, at approximately monthly intervals.
Night-time	10.00 p.m. to 8.00 a.m.

Recyclable Materials	Those waste types, such as cardboard, batteries, gas cylinders, etc, which may be recycled
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.
SCADA system	Supervisory Control and Data Acquisition system
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.
Trigger Level	A parameter value specified in the licence, the achievement or exceedance of which requires certain actions to be taken by the licensee.
White Goods	Refrigerators, cookers, ovens and other similar appliances.
EPA Working Day	Refers to the following hours; 9.00 a.m. to 5.30 p.m. 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 III: 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. 2000-112-01-01 Rev. A – *Site Plan* 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 and Condition 1.5.

1.5 Restrictions on waste disposal

1.5.1. No hazardous wastes, liquid wastes; animal wastes; industrial sludges; sewage sludges; and septic tank waste. Construction waste containing asbestos will be allowed in accordance with Condition 5.7.3.

1.5.2. Whole used tyres (other than bicycle tyres and tyres with an outside diameter of greater than 1400mm) shall not be disposed of at the facility from 16th July 2003. Shredded tyres shall not be disposed of at the facility from 16th July 2006.

1.5.3. Only commercial and industrial wastes, not including foodstuffs, may be deposited in Cell 14.

1.6 Waste Acceptance Hours and Hours of Operation

1.6.1 Waste shall only be accepted at the facility for disposal between the hours of 8.00 a.m. to 4.30 p.m. Monday to Friday inclusive and 8.00 a.m. to 12.00 p.m. on Saturdays.

1.6.2 The landfill at the facility shall only be operated during the hours of 8.00 a.m. to 5.00 p.m. Monday to Friday inclusive and 8.00 a.m. to 12.30 p.m. on Saturdays.

1.6.3 Subject to Condition 1.6.1, waste shall only be accepted at the Civic Waste Facility between the hours of 8.00 a.m. to 4.30 p.m. Monday to Saturday inclusive.

1.7 The following shall constitute an incident for the purposes of this licence:

- 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; and
- d) any indication that environmental pollution has, or may have, taken place.

1.8 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:

1.8.1 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;

1.8.2 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; and

1.8.3 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.

1.9 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.

- 1.10 This licence is being granted in substitution for the waste licence granted to the licensee on 23rd November 1999 and bearing Waste Licence Register No: 30-1. The previous waste licence (Register No: 30-1) 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 and experienced facility manager 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 may be 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 Within three months from the date of grant of this licence, the licensee shall submit written 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 six months from the date of grant of this licence, the licensee shall submit to the Agency for its agreement a proposal for a documented Environmental Management System (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:

- (i) the items specified to be contained in an Environmental Management Plan in the Landfill Operational Practices Manual published by the Agency;
- (ii) methods by which the objectives and targets will be achieved and the identification of those responsible for achieving those objectives and targets;
- (iii) 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 or specified requirements of the licence not be fulfilled.

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.

2.3.2.5 Communications Programme

The Communications Programme shall 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 as required by the conditions of this licence. All infrastructure in place at the facility shall be maintained and operated, until such time as it is replaced or otherwise, subject to the prior agreement of the Agency.

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 and site security measures shall be installed and maintained as described in Section 3.1.1 of the EIS. The base of the fencing shall be set in the ground.
- 3.4.2 The proposed new entrance shall be secured as referred to in Section 3.1.1.1 of the EIS prior to its use as the main entrance.
- 3.4.3 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.

3.5 Access Road (N77)

3.5.1 Prior to the use of the new entrance to the facility for the acceptance of waste, the licensee shall carry out the road realignment works and measures proposed as outlined in *Sections 2.9, 3.1.2, 3.1.5.1, 4.5.2 and 4.8 of the EIS.*

3.5.2 Traffic from the N77 awaiting access to the facility shall queue along the facility access road only.

3.6 Facility Roads and Hardstanding

3.6.1 Effective site roads shall be provided and maintained to ensure the safe movement of vehicles within the facility.

3.6.2 The site access roads, internal haul roads and hardstanding areas shall be provided and maintained to the specifications described in Section 3.1.2 of the EIS. Drainage from these areas shall be via a silt trap and oil interceptor prior to discharge to a soakpit as indicated in Figure 3.3 of the EIS unless otherwise instructed by this licence.

3.7 Facility Office

3.7.1 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.

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

3.8 Waste Inspection and Quarantine Areas

3.8.1 Within six months of the date of grant of this licence, a Waste Inspection Area and a Waste Quarantine Area as described in Section 3.1.4.2 and shown in Figures 3.3 and 3.4 of the EIS shall be provided and maintained at the facility.

3.8.2 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.

3.8.3 Drainage from these areas shall be directed to the leachate lagoon as shown in Figure 3.3 of the EIS, when installed, unless where otherwise agreed with the Agency. Prior to this drainage shall be diverted for alternative collection and safe disposal.

3.9 Weighbridge

3.9.1 The licensee shall provide, maintain and operate a weighbridge at the facility.

3.10 Wheel Cleaning

3.10.1 Prior to the use of the proposed new site entrance the licensee shall establish and maintain a wheelwash at the facility in accordance with the specification shown in Figure 3.4 of the EIS.

3.11 Waste Water Treatment Plant

3.11.1 Within eighteen months of date of grant of this licence, the licensee shall provide and maintain a small-scale wastewater treatment plant at the facility for the treatment of wastewater arising on-site.

3.11.2 The specification of the proposed new treatment plant shall be as referred to in Section 3.1.6.4 of the EIS to satisfy the design criteria set out in the Wastewater Treatment Manual, *Treatment Systems for Single Houses*, published by the Environmental Protection Agency. The outlet from the treatment plant shall discharge to the leachate lagoon shown in Figure 3.3 of the EIS.

3.11.3 The existing septic tank system shall be decommissioned within three months of the commissioning of the above-mentioned system.

3.12 Tank and Drum Storage Areas

3.12.1 All tank and drum storage areas shall be rendered impervious to the materials stored therein.

3.12.2 All tank and drum storage areas shall, as a minimum, be bunded, 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 bunded area; or
- (b) 25% of the total volume of substance which could be stored within the bunded area.

3.12.3 All drainage from bunded areas shall be diverted for collection and safe disposal.

3.12.4 All inlets, outlets, vent pipes, valves and gauges must be within the bunded area.

3.12.5 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

3.13 Landfill Lining:

3.13.1 The landfill liner shall comprise:

- (i) a composite liner consisting of a 1.0m layer of compacted soil with a hydraulic conductivity of less than or equal to 1×10^{-9} m/s, overlain by a 2mm thick high density polyethylene (HDPE) layer;
- (ii) a geotextile protection layer placed over the HDPE layer;
- (iii) 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;
- (iv) the side walls shall be designed and constructed to achieve an equivalent protection.

3.13.2 The liner detailed design and its construction shall be in accordance with the guidelines provided in the Agency's Landfill Manual, Landfill Site Design.

3.13.3 Formation levels of the cells shall be as shown on Figure 3.7 – *Dunmore Landfill Site Phased Construction & Cell Layout* and Figure 3.8 – *Cross Sections* of the EIS subject to the amendments necessary to comply with the conditions of this licence.

3.13.4 Following the placement of the liner system in any new cell or leachate storage lagoon the licensee shall commission an independent leak detection survey of the liner system.

3.14 Leachate Management Infrastructure

- 3.14.1 Prior to the use of any new cells for the deposition of waste the licensee shall ensure that sufficient leachate storage capacity is provided to cater for leachate generation from those cells. The lining for any new leachate storage lagoon shall be a composite liner the same as that specified for the landfill liner (Condition 3.13.1).
- 3.14.2 In addition to maintenance of the existing leachate management infrastructure the licensee shall provide and maintain further leachate management infrastructure as described in Section 3.1.8 and 3.1.9 of the EIS for new cells.
- 3.14.3 All leachate management structures on-site shall be inspected and certified fit for purpose on an annual basis by an independent and appropriately qualified chartered engineer. The tanker(s) used for the transport of leachate offsite shall also be inspected once every two years by independent appropriately qualified personnel.

3.15 Landfill Gas Management

- 3.15.1 A landfill gas flare and associated infrastructure to facilitate collection and flaring of landfill gas from the facility shall be installed within twelve months of the date of grant of this licence. The flare shall be of an enclosed type design and shall comply with the emission limits in *Schedule C.4: Emission Limit Values for Landfill Gas Flare and/or Utilisation Plant* of this licence. The flare shall be located as shown in Figure 3.1 of the EIS unless otherwise agreed with the Agency.
- 3.15.2 Flare unit efficiency shall be tested once it is installed and once every three years thereafter.
- 3.15.3 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.
- 3.15.4 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.
- 3.15.5 Prior to connection to and operation of the active landfill gas collection and flaring system passive landfill gas management at the facility shall be carried out in waste filled areas in the manner detailed in Section 3.1.10.2 of the EIS.
- 3.15.6 All vents installed and maintained on site to facilitate passive gas venting shall be fitted with an effective activated carbon filter, or alternative agreed with the Agency.
- 3.15.7 Within twelve months of the date of grant of this licence the licensee shall submit an assessment of whether the utilisation of landfill gas as an energy resource is feasible. If feasible such a system shall be installed within a timeframe agreed with the Agency. This assessment shall examine the options referred to in Section 3.1.10.4 of the EIS and also the utilisation of heat energy from this plant at other premises/facilities at and in the vicinity of the facility.

3.16 SCADA System

- 3.16.1 Within six months of the date of grant of this licence, the licensee shall install and commission a SCADA system at the facility based on that proposed in Section 3.1.9 of the EIS to facilitate monitoring and management of leachate levels in leachate lagoons and new cells and monitoring of the landfill gas collection and flaring system.

3.17 Surface Water Management

- 3.17.1 Effective surface water management infrastructure shall be provided and maintained at the facility during construction, operation, restoration and aftercare of the facility.

3.17.2 The existing stream running through the facility shall be maintained along with nearby trees and hedgerows.

3.18 Groundwater Management

3.18.1 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.

3.19 Construction and Demolition Waste Storage Area.

3.19.1 Within six months of the date of grant of this licence, the licensee shall provide and maintain a construction and demolition waste storage area to facilitate the storage of construction and demolition wastes accepted at the facility for use on site. The location of this area is to be agreed in advance with the Agency. Unless otherwise agreed with the Agency this infrastructure shall at a minimum comprise the following:

- a) an impermeable concrete slab; and
- b) drainage for all run-off such that it is directed through a silt trap and oil interceptor prior to discharge to a soakpit as indicated in Figure 3.3 of the EIS.

3.20 Civic Waste Facility

3.20.1 The licensee shall establish and maintain the Civic Waste Facility infrastructure and receptacles referred to in Section 3.1.5 of the EIS, including appropriate bunding, unless where otherwise instructed by conditions of this licence or agreed with the Agency.

3.20.2 Drainage from unbunded areas within the Civic Waste Facility shall drain via a silt trap and oil interceptor prior to discharge to a soakpit as indicated in Figure 3.3 of the EIS unless otherwise agreed with the Agency.

3.21 Compost facility

3.21.1 Appropriate infrastructure for the composting of green waste, to include an impermeable concrete slab which drains only to a leachate lagoon, shall be established and maintained at the facility prior to any green waste being composted.

3.22 Berms/Buffer Zones

3.22.1 Unless otherwise agreed by the Agency, the licensee shall provide berms as referred to in Figure 3.1 of the EIS subject to:

- (i) the amendments proposed in Article 16 response (question 2) dated 7th August 2001 and shown in attached figure (Figure 1 - Location of Noise Monitoring Locations); and
- (ii) berms to be located along the northern part of the facility near to the protected stone wall shall be located at a minimum of 5m from the wall.

3.22.2 Prior to the development of any future cells east of Cell 8 the licensee shall provide the proposed berm identified in Figure 3.1 of the EIS to the south east of the stream. Where

such berms are not practicable the licensee shall provide alternative noise barriers subject to Agency agreement.

3.22.3 The above mentioned berms shall be maintained until agreed otherwise with the Agency.

3.22.4 The licensee shall maintain as buffer zones the areas identified in Figure G.1.1 as “buffer zone” - adjacent to the south east boundary and the “grassed areas” - adjacent to the north east boundary and N77.

3.23 Monitoring Infrastructure

3.23.1 Landfill Gas

- (i) Perimeter landfill gas monitoring boreholes shall be constructed at 45m intervals around the periphery of the landfill footprint. The construction of the boreholes shall be phased so as to match the phased development of cells.
- (ii) The licensee shall install an effective permanent gas monitoring system in the proposed new site office prior to its use.

3.23.2 Leachate

- (i) The licensee shall install leachate monitoring points as and when cells are developed in order to allow for the monitoring of leachate as specified under Condition 8.1.

3.23.3 Replacement of Infrastructure

- (i) 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. The Restoration and Aftercare Plans for the facility shall be based on the plans submitted in Attachment G, subject to any alterations required to comply with the conditions of this licence. Within six months of the date of this licence the licensee shall submit to the Agency a revised Restoration and Aftercare Plan to reflect changes due to requirements of this licence. This plan should include Cells 1-7 (note also Condition 4.3.3) and a schedule detailing the various stages of restoration, including timescales.

4.2. The final profile of the facility shall be based on, and in any case no greater than, that proposed in Figure G.1.2 – final Contour Layout, subject to any amendments in cell development required to comply with the conditions of this licence. The final height of the facility shall not exceed 62.0 mOD Malin.

4.3. Final Capping

4.3.1. 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;
 - d) a flexible membrane liner ;
 - e) 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
 - f) gas collection layer of natural material (minimum 0.3m) or a geosynthetic layer.
- 4.3.2. Filled cells shall be permanently capped to the specifications agreed with the Agency in accordance with Condition 4.3.1 within twelve months of the cells having been filled to the required level.
- 4.3.3. Within twelve months of the date of grant of this licence Cells 1-7 shall be capped in accordance with Condition 4.3.1.
- 4.4. 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.
- 4.5. The restoration of all landfilled areas shall be completed within two years of the final cessation of waste being deposited at the landfill.
- 4.6. Soil Storage
- 4.6.1. All soils shall be stored to preserve the soil structure for future use.

REASON: To provide for the restoration of the facility

CONDITION 5 FACILITY OPERATIONS

5.1 Waste Deposition

- 5.1.1 Wastes shall not be deposited in any cell or part of the landfill without the prior agreement of the Agency.

5.2 Waste Acceptance and Characterisation Procedures

- 5.2.1 Within three months of the date of grant of this licence the licensee shall submit to the Agency for its agreement site specific written procedures for site staff on the acceptance and handling of all wastes. These procedures shall be based on the information submitted on waste acceptance in Section 3.1.4 of the EIS and requirements of this licence.
- 5.2.2 Each load of waste arriving at the facility shall be visually inspected prior to unloading in accordance with “Level 3: On-site verification” outlined in the Agency’s Draft Manual on Waste Acceptance. In addition, all wastes shall be checked at the working face to ensure that they comply with the requirements of the licence. Any wastes not suitable for acceptance shall be removed for recovery or disposal at an appropriate alternative facility. Such waste may be stored in the Waste Quarantine Area only and removed as soon as practicable to a suitable authorised facility. No waste shall be stored in the Waste Quarantine Area for more than three months.

5.3 Working Face

- 5.3.1 Unless the prior agreement of the Agency is given, the following shall apply at the landfill:
- a) subject to b) below only one working face, shall exist at the landfill at any one time for the deposit of waste other than cover or restoration materials;
 - b) a second face may be operated for the deposit of waste in Cell 14 in accordance with the requirements of this licence; and
 - c) the working face(s) shall be no more than 2.5 metres in height after compaction, no more than 25 metres wide and 25 metres in length and have a slope no greater than 1 in 3.

5.3.2 All waste deposited at the working face(s) 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.

5.3.3 The working face(s), shall each day at the end of the day, be covered with suitable cover material.

5.4 Daily and Intermediate Cover

5.4.1 All filled areas, other than those currently being used as the working face(s) or capped in accordance with Condition 4.3 shall be covered with intermediate cover material.

5.4.2 Material to be used as daily and intermediate cover shall be soil unless otherwise agreed with the Agency.

5.4.3 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 Landscaping

5.5.1 Apart from the removal of hedgerow to facilitate the new facility entrance, the existing trees and hedgerow network along the boundary of the facility and near to the stream running through the facility shall be retained by the licensee.

5.6 Operational Controls

5.6.1 All large hollow objects and other large articles deposited at the facility shall be crushed, broken up, flattened or otherwise treated.

5.6.2 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 leachate and landfill gas collection systems unless with the prior agreement from the Agency.

5.6.3 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

5.6.4 Scavenging shall not be permitted at the facility.

5.6.5 Gates shall be locked shut when the facility is unsupervised.

5.6.6 The licensee shall provide and use adequate lighting during the operation of the facility in hours of darkness.

5.6.7 Fuels shall only be stored at appropriately bunded locations on the facility.

5.6.8 All tanks and drums shall be labelled to clearly indicate their contents.

5.6.9 No smoking shall be allowed on the facility other than in facility offices fitted with permanent gas monitoring systems.

5.7 Waste Handling

5.7.1 Sewage Sludge

- (i) Only treated sewage sludge for use as a soil conditioner (as part of the landfill restoration process) may be accepted at the landfill.

5.7.2 Compost

- (i) Prior to the commencement of green waste composting at the facility, the licensee shall submit to the Agency for agreement proposals for the operation of the compost facility. These proposals shall include as a minimum details of the composting process, location of the composting facility, nuisance control, surface water management, monitoring of composting process, monitoring of leachate generated within the compost area, monitoring of the end product of the composting process and the proposed end use of the compost.
- (ii) 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.

5.7.3 Asbestos Waste

- (i) Only asbestos waste classified under EWC as *17 06 05 - construction materials containing asbestos* may be disposed of at the facility.
- (ii) This asbestos waste must be double wrapped in heavy gauge plastic which is clearly labelled to indicate the presence of asbestos prior to its disposal.
- (iii) Disposal of this asbestos waste shall be into prepared bays or trenches of at least 2 metres in depth.
- (iv) Following deposition, this asbestos waste shall be covered immediately with at least 250mm of suitable material. At the end of the day, the waste shall be covered with a minimum of 500mm of suitable material.
- (v) No asbestos waste shall be present within 2.5 metres of the final surface levels.
- (vi) After 16th July 2002 this waste shall only be acceptable at the facility for disposal following Agency agreement and subject to deposition being carried out in accordance with Council Directive 1999/31/EC on the landfill of waste and any technical guidance issued by the European Commission.

5.8 Off-site Disposal and Recovery

5.8.1 Waste sent off-site for recovery or disposal shall only be conveyed by a waste contractor agreed by the Agency;

5.8.2 All waste transferred from the facility shall only be transferred to an appropriate facility agreed by the Agency;

5.8.3 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.

5.9 Civic Waste Facility

- 5.9.1 Waste may only be accepted at the Civic Waste Facility from 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.
 - 5.9.2 Waste to be accepted at the civic waste facility shall be limited to domestic waste, glass, beverage cans, textiles, paper and cardboard, plastics, timber, metals, tyres, green waste, electronic goods, fluorescent tubes, waste oils, household hazardous waste, batteries, print/toner cartridges, and other waste subject to the prior written agreement of the Agency. These waste types shall be stored in separate appropriate containers within the civic waste facility.
 - 5.9.3 The licensee shall assign and clearly label each container at the Civic Waste Facility to indicate their contents.
 - 5.9.4 Household hazardous wastes, batteries, waste oils and print/toner cartridges shall be stored in banded containers within a banded area(s), such as referred to in Section 3.1.5 of the EIS. Fluorescent tubes shall be stored in an enclosed container, which provides individual compartments for the storage of fluorescent tubes in such a manner to prevent breakage.
 - 5.9.5 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 or removed offsite to an alternative facility agreed with the Agency.
 - 5.9.6 The Civic Waste Facility shall be supervised at all times during which it is open for the acceptance of waste.
- 5.10 Construction and Demolition Waste Storage Area
- 5.10.1 Only Construction and Demolition waste accepted for on site use may be stored temporarily in this area.
 - 5.10.2 All stockpiles shall be maintained so as to minimise dust generation.
- 5.11 Leachate Management
- 5.11.1 Leachate levels in Cells No. 8, 9 & 10 and in any new cells shall not exceed a level of 1.0m over the top of the liner at the base of the cell.
 - 5.11.2 The frequency of leachate removal from leachate lagoons shall be such that a minimum freeboard of 0.75m shall be maintained in the leachate lagoon(s) at all times.
 - 5.11.3 Leachate stored in leachate lagoon(s) or holding tank shall be disposed of by tankering off-site in fully enclosed road tankers.
 - 5.11.4 The leachate storage tanker shall be sited in such a way that any leakage or spillages shall be contained in the leachate storage lagoon(s).
 - 5.11.5 The licensee shall maintain written procedures for the removal of leachate by tanker from the facility for treatment. The procedures shall be updated to take into account the operation of a second leachate lagoon at the facility.
 - 5.11.6 The licensee shall maintain written procedures for the monitoring of leachate levels in the manholes draining towards the existing leachate lagoon to include details of the relationship between the levels in the lagoon, the manholes and the cells.
 - 5.11.7 Leachate re-circulation shall not be undertaken at the facility, unless otherwise agreed with 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 Once installed and operational 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 landfill gas emissions to atmosphere in this licence shall be interpreted in the following way:-
 - 6.3.3.1. Continuous monitoring
 - (i) No 24 hour mean value shall exceed the emission limit value.

(ii) 97% of all 30 minute mean values taken continuously over an annual period shall not exceed 1.2 times the emission limit value.

(iii) No 30 minute mean value shall exceed twice the emission limit value.

6.3.3.2. Non-Continuous Monitoring

(i) For any parameter where, due to sampling/analytical limitations, a 30 minute samples is inappropriate, a suitable sampling period should be employed and the value obtained therein shall not exceed the emission limit value.

(ii) For all other parameters, no 30 minute mean value shall exceed the emission limit value.

(iii) For flow, no hourly or daily mean value shall exceed the emission limit value.

6.4. Emissions to Surface Water

6.4.1. There shall be no leachate discharges to surface water.

6.4.2. Surface water collected at the facility may only be discharged to surface waters after passing through a silt trap or equivalent and at agreed discharge points following prior agreement of the Agency.

6.5. Emissions to Groundwater

6.5.1. There shall be no direct emissions to groundwater.

6.5.2. Surface water collected at the facility may be discharged to soakpits at locations to be agreed in advance with the Agency.

6.6. Disposal of Leachate

6.6.1. All leachate or contaminated water tankered from the facility shall be transported to Kilkenny Main Drainage Treatment Plant, Purcellsinch, Kilkenny and disposed of there, unless another treatment plant has been agreed in advance with the Agency.

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

CONDITION 7 NUISANCES

7.1 The licensee shall ensure that vermin, birds, flies, mud, dust, litter and odours 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 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.

7.3 Litter Control

7.3.1 The measures and infrastructure as described in Section 3.3.4 of the EIS shall be applied to control litter at the facility and shall incorporate the use of litter fencing around the perimeter of the active tipping area.

- 7.3.2 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.
- 7.3.3 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.
- 7.3.4 The licensee shall ensure that all vehicles delivering waste to and removing waste and materials from the facility are appropriately covered.

7.4 Dust Control

- 7.4.1 The measures and infrastructure as described in Section 3.3.3 of the EIS submitted as part of the application shall be applied to control dust at the facility, unless otherwise instructed by conditions of this licence.
- 7.4.2 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.
- 7.5 Prior to exiting the facility from the new entrance all waste vehicles shall use the wheelwash. The road cleansing procedures outlined in Section 3.3.6 of the EIS shall also be employed.

7.6 Bird Control

- 7.6.1 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.

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. All landfill gas monitoring equipment, other than permanent monitoring systems within buildings, shall be certified as being intrinsically safe.
- 8.6. Noise Monitoring
- 8.6.1. Within three months of the date of grant of this licence the licensee shall submit proposed noise monitoring locations as referred to in Table D.1.1 to the Agency for agreement.
- 8.7. Dust Monitoring
- 8.7.1. Within three months of the date of grant of this licence the licensee shall submit proposed dust monitoring locations as referred to in Section 3.5.3 of the EIS to the Agency for agreement.
- 8.8. Topographical Survey
- 8.8.1. A topographical survey of all waste filled areas and areas for future waste deposition as allowed for under this licence shall be carried out within six months of the date of grant of this licence. 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. Archaeological Assessment
- 8.9.1. Prior to the development of any undisturbed area, the advice of Dúchas the Heritage Service shall be sought. On completion of such development a report of the results of any archaeological monitoring shall be submitted to Dúchas and to the Agency.
- 8.10. Stability Assessment
- 8.10.1. Within six months of the date of grant of this licence, and annually thereafter, the licensee shall carry out a stability assessment of the side slopes of the facility.
- 8.11. Nuisance Monitoring
- 8.11.1. The licensee shall, at a minimum of one week intervals, inspect the facility and its immediate surrounds for nuisances caused by litter, vermin, birds, flies, mud, dust and odours.

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;

- f) provide a proposal to the Agency for its agreement within one month of the incident occurring to:
 - i) identify and put in place measures to avoid reoccurrence of the incident; and
 - ii) identify and put in place any other appropriate remedial action.

9.2. Within six months of the date of grant of this licence, submit a written Emergency Response Procedure (ERP) to the Agency for its agreement. 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.

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

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;
- 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 (including leachate tankers) and any maintenance or remedial work arising from them;
- d) details of all nuisance inspections; and
- 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.

10.4 The licensee shall maintain a written record of all complaints relating to the operation of the activity. 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 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 from the facility;
- c) the volume of leachate, 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 was transported;
- e) any incidents or spillages of leachate 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.
- 10.8 A written record of the daily bird control activities and the numbers of birds observed at the facility shall be maintained.
- 10.9 A written record of the daily cover activities undertaken shall maintained. This shall include as a minimum the following;
- a) the time during which cover material was applied;
 - b) the type and quantity of cover material applied;
 - c) the location of the working face;
 - d) the condition of intermediate cover material in waste areas not capped in accordance with Condition 4.3, and any remedial actions undertaken.

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 headquarters;
 - 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 10.00 am 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; and
- c) in the event of any incident which relates to discharges to surface water, notify the Southern Regional Fishery Board as soon as practicable and in any case not later than 10:00am on the following working day after such an incident.
- 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) the recovery of Construction and Demolition waste;
- b) the use of inert waste for cover/restoration material at the facility;
- c) the separation of recyclable materials from the waste;
- d) the recovery of metal waste and white goods including written procedures for the degassing of CFCs from refrigerators;
- e) the recovery of commercial waste, including cardboard;
- f) composting of green waste at the facility having regard to good practice and sustainability; and
- g) proposals for the contribution of the facility to the achievement of targets for the reduction of biodegradable waste going to landfills as specified in the Landfill Directive.

11.4 Reports relating to Facility Operations

11.4.1. Achievement of Final Profile

Within six months of the date of grant of this licence, the licensee shall submit to the Agency for its agreement, proposals for landfilling and restoration to achieve the final profile/height of the facility to the Agency for its agreement. This shall include a revised drawing detailing the final contours in accordance with the conditions of this licence.

11.4.2. Operation in Adverse Wind Conditions

Within three months of the date of grant of this licence the licensee shall submit to the Agency for its agreement proposals for the operation of the facility in adverse wind conditions.

11.5 Vermin and Flies

- 11.5.1 Within three months of the date of this licence, the licensee shall submit to the Agency for its agreement an independent review of the effectiveness of the existing vermin and fly control measures and a proposal for the control and eradication of vermin and fly infestations at the facility. The proposal should include as a minimum; operator training, details on the rodenticide(s) and insecticide(s) to be used, mode and frequency of application and measures to contain sprays within the facility boundary.

11.6 Monitoring Locations

- 11.6.1 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. An amended drawing shall be submitted as and when any changes to the monitoring locations are made under the terms of the licence.
- 11.7 Annual Environmental Report
- 11.7.1 The licensee shall submit to the Agency for its agreement, within thirteen months from the date of grant of this licence, and within one month of the end of each year thereafter, an Annual Environmental Report (AER).
- 11.7.2 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.
- 11.8 The licensee shall by 16 July 2002 submit to the Agency for its agreement, a Conditioning Plan for the facility as required by Council Directive 1999/31/EC on the landfill of waste. The Conditioning Plan shall include the particulars listed in Article 8 and any corrective measures which the operator considers will be needed to comply with the requirements of this Directive, with the exception of the requirements in Annex I, point 1.

REASON: To provide for proper report to and notification of 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 £13,067 (€16,592) 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 2003 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 2002, 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 The licensee shall from a date to be set by the Agency establish and maintain a fund, or provide a written guarantee, that is adequate to assure the Agency that the licensee is at all times financially capable of implementing the Restoration and Aftercare Plan required by Condition 4. The type of fund established and means of its release/recovery shall be agreed by the Agency prior to its establishment.
- 12.2.2 Any fund established shall be maintained in an amount always sufficient to underwrite the current Restoration and Aftercare Plan.

12.2.3 The licensee shall revise the cost of restoration and aftercare annually and any details of the necessary adjustments to the fund or guarantee must, within two weeks of the revision, be forwarded to the Agency for its agreement. Any adjustment agreed by the Agency shall be effected within four weeks of said written agreement.

12.2.4 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

The following waste quantities and those waste types outlined in Tables E.2.3 and E.2.4 of the waste licence application other than those prohibited/restricted under Condition 1.5.

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

WASTE TYPE	MAXIMUM (TONNES PER ANNUM)
Household	20,995 ^{Note 1}
Commercial	14,000 ^{Note 1}
Industrial Non-Hazardous Solids	5,000 ^{Note 1}
Treated Sewage Sludge	1,000 ^{Note 2}
Construction & Demolition Waste	1,000 ^{Notes 3 & 4}
Green waste for composting	1,500 ^{Note 5}
TOTAL FOR DISPOSAL	40,000 ^{Note 1}

Note 1: The tonnage of household waste, commercial waste and industrial non-hazardous solid waste may be increased with the prior agreement of the Agency provided that the total amount of these wastes accepted at the landfill for disposal does not exceed the combined total of 40,000 tonnes per annum.

Note 2: Treated sewage sludge may only be accepted at the facility for recovery and in accordance with Condition 5.7.1.

Note 3: Construction & Demolition Waste shall not be disposed of at the facility but may be accepted for recovery for use as daily cover, in site construction works and landfill restoration. This quantity may be increased subject to agreement with the Agency.

Note 4: A maximum of 5 tonnes per annum of construction waste containing asbestos may be disposed of in accordance with Condition 5.7.3.

Note 5: Limited to 1,000 m³ at any time.

SCHEDULE B : Specified Engineering Works

Specified Engineering Works
Development of the facility including preparatory works and lining, the installation of a new facility entrance, a civic waste facility, perimeter berms and a compost facility.
Final capping and Restoration Works.
Installation of Wheel Cleaning
Installation of Landfill Gas Management Infrastructure
Installation of Leachate Management Infrastructure
Installation of Groundwater Control 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 the monitoring points indicated in *Table D.1. - Monitoring Locations*)

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. - Monitoring Locations*).

Level (mg/m ² /day) ^{Note 1}
350

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

C.4 Emission Limit Values for Landfill Gas Flare and/or Utilisation Plant

Emission Point reference no.s: (to be agreed with the Agency)
 Location: Landfill Gas Combustion Plant and flarestacks
 Volume to be emitted: 3000m³/hr
 Minimum discharge height: 5m

Parameter	Emission Limit Value ^{Note 1}
Nitrogen oxides as (NO ₂)	500 mg/m ³ for Combustion Plants 150mg/m ³ for Flare Stacks
CO	650 mg/m ³ for Combustion Plants

Parameter	Emission Limit Value ^{Note 1}
	50mg/m ³ for Flare Stacks
Particulates	130 mg/m ³
TA Luft Organics Class I ^{Note 2}	20 mg/m ³ (at mass flows > 0.1 kg/hr)
TA Luft Organics Class II ^{Note 2}	100 mg/m ³ (at mass flows > 2 kg/hr)
TA Luft Organics Class III ^{Note 2}	150 mg/m ³ (at mass flows > 3kg/hr)
Hydrogen Chloride	50 mg/m ³ (at mass flows > 0.3 kg/h)
Hydrogen Fluoride	5 mg/m ³ (at mass flows > 0.05 kg/h)
Hydrocarbons	10mg/m ³

Note 1: Dry gas referenced to 5% oxygen by volume.

Note 2: In addition to the above individual limits, the sum of the concentrations of Class I, II and III shall not exceed the Class III limits.

SCHEDULE D :Monitoring

Monitoring to be carried out as specified below.

D.1 Monitoring Locations

Monitoring locations shall be those as set out in Table D.1.1 and shown in *Figure 2.2.1 – Existing Monitoring Locations* of the EIS unless otherwise indicated or agreed with the Agency.

Table D.1.1 Monitoring Locations

LANDFILL GAS STATIONS	DUST STATIONS	NOISE STATIONS	SURFACE WATER STATIONS	GROUND-WATER STATIONS	LEACHATE STATIONS
GM 1, GM 2, GM 3, GM 4, GM 5, GM 7, GM 8, GM 9	Note 1	NS1 ^{Note 2}	Stream A - Upstream	No. 3, GW1	See Tables D.1.2(a) & (b)
VP1 to VP21		NS2 ^{Note 2}	Stream A - Downstream		
Additional perimeter monitoring points such that points are spaced at no greater than 45m intervals around the areas to be filled		NS3 ^{Note 2}	^{Note 3}	No. 14	
All future lined cells monitoring locations to be agreed as part of specified engineering works.		NS4 ^{Note 2}		GW2	
Site Office & Buildings		NS5 ^{Note 2}		GW3	
				GW4	
				MW1	
				No.15	
				No. 6	

Note 1: Locations to be agreed under Condition 8.7.

Note 2: At nearest practicable point on facility boundary to this reference point as shown on Figure 4 of Article 13 response dated 7th August 2001 and to be agreed under Condition 8.6.

Note 3: Any discharge locations allowed for under Condition 6.4.2.

Table D.1.2(a) Leachate Monitoring Locations

Stations ^{Note 1}
Leachate storage lagoon(s) ^{Note 2}
Leachate Manholes 1-5
Monitoring locations in new cells to be agreed as part of specified engineering works.

Note 1: Unless otherwise agreed with the Agency.

Note 2: From date of commissioning for new lagoons.

Table D.1.2(b) Leachate Monitoring Locations, Parameters & Frequency

Monitoring Medium	Parameters	Frequency		Monitoring Points
		Operational	Aftercare	
Leachate	Leachate levels and freeboard in leachate storage lagoon(s)	Continuous ^{Note 1}	Weekly	As per Table D.1.2(a)
	Leachate composition analysis	As per Table D.5.1	At half the frequency specified in Table D.5.1 with a minimum of once per annum.	Leachate lagoon(s)

Note 1: Prior to commissioning of the SCADA system (Condition 3.17) frequency to be weekly for leachate levels and daily for leachate lagoon(s).

D.2 Landfill Gas

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

Parameter	Monitoring Frequency		Analysis Method ^{Note1} /Technique ^{Note2}
	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

Note1: All monitoring equipment used should be intrinsically safe.

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

D.3 Dust

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 2}	Standard Method ^{Note 1}

Note 1: Standard method VDI2119 (Measurement of Dustfall, Determination of Dustfall using Bergerhoff Instrument (Standard Method) German Engineering Institute). A modification (not included in the standard) which 2 methoxy ethanol may be employed to eliminate interference due to algae growth in the gauge.

Note 2: Twice during the period May to September, or as otherwise specified in writing by the Agency using the Bergerhoff Method.

D.4 Noise

Table D.4.1 Noise Monitoring Frequency and Technique

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

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

D.5 Surface Water, Groundwater and Leachate

Table D.5.1 Water and Leachate - Parameters /Frequency

Parameter ^{Note 1}	SURFACE WATER Monitoring Frequency	GROUNDWATER	LEACHATE
		Monitoring Frequency	Monitoring Frequency
Visual Inspection/Odour ^{Note 2}	Weekly	Quarterly	Quarterly
Groundwater Level	Not Applicable	Monthly	Not Applicable
Leachate Level	Not Applicable	Not Applicable	Weekly
Ammoniacal Nitrogen	Quarterly	Quarterly	Quarterly
BOD	Quarterly	Not Applicable	Quarterly
COD	Quarterly	Not Applicable	Quarterly
Chloride	Quarterly	Quarterly	Quarterly
Dissolved Oxygen	Quarterly	Quarterly	Not Applicable
Electrical Conductivity	Quarterly	Quarterly	Quarterly
pH	Quarterly	Quarterly	Quarterly
Total Suspended Solids	Quarterly	Not Applicable	Not Applicable
Temperature	Quarterly	Monthly	Quarterly
Boron	Not Applicable	Annually	Annually
Cadmium	Annually	Annually	Annually
Calcium	Annually	Annually	Annually
Chromium (Total)	Annually	Annually	Annually
Copper	Annually	Annually	Annually
Cyanide (Total)	Not Applicable	Annually	Annually
Fluoride	Not Applicable	Annually	Annually
Iron	Annually	Quarterly	Annually
Lead	Annually	Annually	Annually
List I/II organic substances ^{Note 3}	Not Applicable	Annually	Not Applicable
Magnesium	Annually	Annually	Annually
Manganese	Annually	Annually	Annually
Mercury	Annually	Annually	Annually
Potassium	Annually	Quarterly	Annually
Sulphate	Annually	Annually	Annually
Sodium	Annually	Quarterly	Annually
Total Alkalinity	Annually	Annually	Not Applicable
Total Phosphorus / orthophosphate	Annually	Annually	Annually
Total Oxidised Nitrogen	Annually	Quarterly	Quarterly
Total Organic Carbon	Not Applicable	Quarterly	Not Applicable
Residue on evaporation	Not Applicable	Annually	Not Applicable
Zinc	Annually	Annually	Annually
Faecal Coliforms ^{Note 4}	Not Applicable	Quarterly	Annually
Total Coliforms ^{Note 4}	Not Applicable	Quarterly	Annually

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

Note 2: Where there is evident gross contamination of leachate, additional samples should be analysed.

Note 3: 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 (US Environmental Protection Agency method 525 or equivalent, and pesticides (US Environmental Protection Agency method 608 or equivalent).

Note 4: In the case where groundwater is extracted for drinking water and there is evidence of bacterial contamination, analysis at monitoring points up gradient and downgradient of the landfill should include enumeration of total bacteria at 22°C and 37°C and faecal streptococci..

D.6 Meteorological Monitoring

Meteorological monitoring data, as set out in Table D.6.1, to be obtained from Kilkenny Meteorological Station, Granges Road, Kilkenny.

Table D.6.1 Meteorological Monitoring:

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	Daily	Standard
Humidity	Daily	Standard
Atmospheric Pressure	Daily	Standard

D.7 Landfill Gas Flare and Landfill Gas Utilisation Plant

Monitoring of the landfill gas flare or combustion plant shall be carried out as set out in Table D.7.1. Monitoring points to be agreed with the Agency prior to the operation of the plant.

Table D.7.1 Landfill Gas Flare and Landfill Gas Utilisation Plant Monitoring Frequency and Technique

Parameter ^{Note 1}	Monitoring Frequency	Analysis Method ^{Note 2} /Technique ^{Note 3}
Inlet		
Methane (CH ₄) % v/v	Weekly	Infrared analyser/flame ionisation detector
Carbon dioxide (CO ₂)%v/v	Weekly	Infrared analyser/ flame ionisation detector
Oxygen (O ₂) %v/v	Weekly	Infrared analyser
Outlet		
Volumetric Flow rate	Biannually	Pitot Tube Method
SO ₂	Biannually	Flue gas analyser
Nox	Biannually	Flue gas analyser
CO	Continuous	Flue gas analyser
Particulates	Annually	Isokinetic/Gravimetric
TA Luft Class I, II, III organics	Annually	Adsorption/Desorption / GC /GCMS ^(Note 4)
Hydrochloric acid	Annually	Impinger / Ion Chromatography
Hydrogen fluoride	Annually	Impinger / Ion Chromatography
Hydrocarbons	Annually	Adsorption/Desorption /GC /GCFID ^(Note 4)

Note 1: Monitoring locations to be installed and agreed prior to the commissioning of the enclosed Flare Unit and the Landfill Gas Utilisation Plant.

Note 2: All monitoring equipment used should be intrinsically safe.

Note 3: Or other methods agreed in advance with the Agency.

Note 4: Test methods should be capable of detecting acetonitrile, dichloromethane, tetrachlorethylene and vinyl chloride as a minimum.

D.8 Monitoring of Composting Process

Table D.8.1 Monitoring of Composting Process

Parameter	Monitoring^{Note1} 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 ^{Note1}	Report Submission Date
Environmental Management System Updates	Annually	One month after the end of the year reported on.
Annual Environment Report (AER)	Annually	Thirteen months from the date of grant of licence 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	Quarterly	Ten days after end of the quarter being reported on.
Monitoring of Groundwater Quality	Quarterly	Ten days after end of the quarter being reported on.
Monitoring of 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
Noise 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; and
- 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.
- 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

Trace Elements ^{Note 2}	(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
- there can be no salmonellae present (< 3 MPN/4g total solids).

5. Monitoring

The licensee shall monitor the compost product at least monthly. 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.

Methods of deposition of waste.

Summary report on emissions.

Summary of results and interpretation of environmental monitoring. This must include the following:

- Summary of monitoring results for key leachate indicator parameters;
- Comparison of monitoring results against previous results and relevant standards
- Graphical presentation of the trends in the concentration of key leachate indicator parameters; and
- An assessment and explanation of the significance of the results and trends detected

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.

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 any environmental improvement projects in the surrounding area funded from waste charges/gates fees collected.

Report on training of staff.

Any other items specified by the Agency.

Signed on behalf of the said Agency
on the 20th day of December 2001

Breda Sheehan

Authorised Person