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P.O. Box 3000,
Johnstown Castle Estate
County Wexford, Ireland

WASTE LICENCE

Waste Licence	30-1
Register Number:	
Licensee:	Kilkenny County Council
Location of Facility:	Dunmore Landfill, Dunmore, Co. Kilkenny

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Reasons for the Proposed Decision

The Agency is satisfied, on the basis of the information available, that subject to compliance with the conditions of this licence any emissions from the activity will comply with and not contravene any of the requirements of Section 40(4) of the Waste Management Act, 1996.

In reaching this decision the Agency has considered the application and supporting documentation received from the applicant, all submissions and objections received and the reports of its inspectors.

Part I: Activities Licensed

In pursuance of the powers conferred on it by the Waste Management Act, 1996, the Environmental Protection Agency (the Agency), under Section 40(1) of the said Act hereby grants 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 11 No. 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 (as amended)

Class 1: Deposit on, in or under land (including landfill).

Class 2: Land treatment, including biodegradation of liquid or sludge discards in soils.

Class 4: Surface impoundment, including placement of liquid or sludge discards into pits, ponds or lagoons.

Class 5: Specially engineered landfill, including placement into lined discrete cells which are capped and isolated from one another and the environment.

Licensed Waste Recovery Activities, in accordance with the Fourth Schedule of the Waste Management Act, 1996 (as amended)

Class 10: The treatment of any waste on land with a consequential benefit for an agricultural activity or ecological system.

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.

INTERPRETATION

Act	The Waste Management Act, 1996 (No. 10 of 1996).
Adequate lighting	20 lux measured at ground level.
Agreement	Agreement in writing.
Application	The application by the licensee for this waste licence, including any other material submitted to the Agency in writing by the licensee between the date of the application and the date of grant of this 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.
BATNEEC	Best Available Technology Not Entailing Excessive Cost as defined in section 5 (2) of the Act.
Commercial waste	As defined in Section 5 (1) of the Act.
Condition	A condition of this licence. In any case where this licence refers to a numbered condition, the reference shall be taken to mean the condition and any sub-condition therein which the context of the reference requires that reference is made to
Containment boom	A boom which can contain spillages and prevent these 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 subject to a proposal made by the licensee for the Agency's agreement.
Daytime	0800 hrs. to 2200 hrs.
Documentation	Any report, record, result, data, drawing, proposal, interpretation or other document in written or electronic form which is required by this licence
Drawing	Any reference to a drawing or drawing number means a drawing or drawing number contained in the application, unless otherwise specified in this licence.
Emission	As defined in Section 5 (1) of the Act.
Environmental Pollution	As defined in Section 5 (1) of the Act.

European Waste Catalogue (EWC)	The EWC is 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.
Facility	That area or areas defined under <i>Condition 1.2</i>
Hazardous Waste	As defined in Section 4 (2) of the Act.
Household Waste	As defined in Section 5 (1) of the Act.
Industrial waste	As defined in Section 5 (1) of the Act.
Incident	Any reference to an incident in this licence means an incident as defined in Condition 3.1.
K or Coefficient of Permeability	The coefficient of permeability of a given medium is an expression of the rate of flow through unit area and thickness under unit differential pressure at a given temperature. It is synonymous with hydraulic conductivity when the fluid is water. The permeability of soil liners and pervious blankets is measured in m/s (i.e. $m^3/m^2/s$).
Landfill	As defined in Section 5 (1) of the Act.
Landfill Gas	Gases generated from the landfilled waste.
Leachate	Any liquid percolating through the deposited waste and emitted from or contained within a landfill as defined in Section 5 (1) of the Act.
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 20% dry matter
Maintain	Keep in a fit state, including such regular inspection, servicing and repair as may be necessary to adequately perform its function.
Monthly	At least 12 times per year, at approximately monthly intervals.
Municipal Waste	Municipal waste as defined in Section 5 (1) of the Act.
Night-time	2200 hrs to 0800 hrs.
Non hazardous waste	Non-Hazardous Waste is any waste which is not a hazardous waste as defined in the Act.
Quarterly	A period of three calendar months, the first period of which commences on the date of grant of this licence.
Recovery	As defined in Section 4 (4) of the Act.

Sample(s)	Unless the context of this licence indicates to the contrary, samples shall include measurements by electronic instruments.
Sludge	The accumulation of solids resulting from chemical coagulation, flocculation and/or sedimentation after water or wastewater treatment.
Specified Emissions	Those emissions listed in Schedule G of this licence.
Specified Engineering Works	Those engineering works listed in Schedule E of this licence.
Submit	Unless the context of this licence indicates otherwise, submit to the Agency in writing for agreement.
Trigger Level	A parameter value which when achieved or exceeded requires certain actions to be taken.
Waste	As defined in Section 4(1) of the Act.
Waste disposal activity	Includes the activities referred to in Section 4 of the Act and listed in the Third Schedule thereto.
Waste recovery activity	Includes the activities referred to in Section 4 of the Act and listed in the Fourth Schedule thereto.
White Goods	Refrigerators, cookers, ovens and other similar appliances.
Working Day	9.00 a.m. to 5.30 p.m. Monday to Friday.
Working Face	The area of the site in which waste other than cover material is being deposited.

Part II: CONDITIONS

CONDITION 1 SCOPE

- 1.1. The waste activities authorised by this licence are listed and described in *Schedule A: Waste Activities*. Waste activities at the facility shall be restricted to those listed in Schedule A and any restrictions set down therein.
- 1.2. Waste activities shall be restricted to the area of land outlined in red on *Drawing No. DLS/98/02RevB - Site Plan*. Any reference in this licence to "facility" shall mean the area thus outlined in red.
- 1.3. Every plan, programme or proposal submitted to the Agency for 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. Every 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.
- 1.4. 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.
- 1.5. Where the Agency considers that a non-compliance with the Conditions of this licence has occurred, it may serve a notice on the licensee specifying:
 - a) 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;
 - b) 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,
 - c) 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 confirmation is received from the Agency that the notice is withdrawn.

Reason: *To clarify the scope of this licence.*

CONDITION 2 MANAGEMENT OF THE ACTIVITY

2.1 Environmental Management System

2.1.1 The licensee shall within *eighteen months* from the date of grant of this licence, 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 agreement.

2.1.2 The EMS shall include as a minimum those elements specified in the Conditions 2.2 to 2.8 below:

2.2 Schedule of Environmental Objectives and Targets

2.2.1 The licensee shall, within *twelve months* from the date of grant of this licence, submit to the Agency for its agreement a Schedule of Objectives and Targets. The objectives should be specific and the targets measurable.

2.2.2 The Schedule shall address a five year period as a minimum and shall be reviewed and submitted annually to the Agency for its agreement.

2.3 Environmental Management Programme

2.3.1 The licensee shall, within *twelve months* from the date of grant of this licence, submit to the Agency for its agreement an Environmental Management Programme (EMP). The EMP shall include a time-scale for achieving the Schedule of Objectives and Targets and shall comply with any other guidance issued by the Agency.

2.3.2 The EMP shall include, as a minimum, the information specified *in Schedule B: Content of the Environmental Management Programme*. The EMP shall be reviewed and submitted to the Agency for its agreement annually.

2.4 Corrective Action

2.4.1 The licensee shall establish and maintain written Corrective Action Procedures to ensure that corrective action is taken should specified requirements to this licence not be fulfilled.

2.5 Awareness and Training

2.5.1 The licensee shall establish and maintain Awareness and Training Procedures for identifying training needs and for providing appropriate training, for personnel whose work is related to the licensed facility. Written records of training shall be maintained.

2.6 Management Structure

2.6.1 The management structure of the facility shall be as outlined in *Attachment L.2* (as amended by further information received on 1st December 1998). Any proposed changes in the management structure shall be submitted to the Agency for its agreement. This includes changes in any of the following:

- a) the names of all persons who are to provide the management and supervision of the waste activities authorised by the licence;
- b) a named contact person for communications with the Sanitary Authority;
- c) details of the responsibilities for each individual named under a) above;
- d) details of the relevant experience, competence and qualifications held by each of the persons nominated under a) above; and
- e) contingency arrangements for the absences of the named persons from the facility.

2.7 Communications

2.7.1 Within *six months* from the date of grant of this licence, the licensee shall submit for agreement to the Agency a Communications Programme to ensure that members of the public can obtain information concerning the environmental performance of the facility at all reasonable times.

2.8 Annual Environmental Report

2.8.1 The licensee shall submit to the Agency for its agreement, within *twelve months* from the date of grant of this licence, and within *one month* of the end of the year thereafter, an Annual Environmental Report (AER).

2.8.2 The AER shall include as a minimum the information specified in *Schedule C: Content of Annual Environmental Report* and shall be prepared in accordance with any relevant written guidance issued by the Agency.

2.9 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 suitably qualified and experienced deputy, shall be present at all times during the operation of the facility.

2.10 The licensee shall ensure that personnel performing specifically assigned tasks shall be qualified on the basis of appropriate education, training and/or experience, as required and shall be aware of the requirements of this licence.

Reason: *To make provision for 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 NOTIFICATION AND RECORD KEEPING

3.1 The licensee shall make written records of the following incidents:

- a) any emission which results in the contravention of any relevant standard, including any standard for an environmental medium, or any relevant emission limit value, prescribed under any relevant enactment;
 - b) any emission which does not comply with the requirements of this licence;
 - c) any trigger level specified in this licence or in the EMS which is attained or exceeded;
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- d) any malfunction of any environmental control system;
 - e) any indication that contamination has, or may have, taken place;
 - f) the cessation of waste activities at the facility for a period in excess of 28 days, and their recommencement;
 - g) any occurrence with the potential for environmental pollution; and,
 - h) any emergency.
- 3.2 The written record shall include all aspects described in *Condition 10.7*.
- 3.3 Unless otherwise instructed in writing by the Agency, the licensee shall:
- a) notify the Agency by telephone, and by facsimile if available, as soon as practicable and in any case not later than 10.00 am the following working day after the occurrence of any incident; and
 - b) submit the written record required by this condition to the Agency as soon as practicable and in any case within *five working days* after the occurrence of any incident.
- 3.4 Should any further actions be taken after the date of written notification, 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.
- 3.5 Unless otherwise agreed by the Agency, all documentation submitted to the Agency shall:
- (a) be sent to the Agency's headquarters;
 - (b) comprise one original and three copies;
 - (c) be formatted in accordance with any written instruction or guidance issued by the Agency;
 - (d) be identified by a unique code, indicate any modification or amendment, and be correctly dated to reflect any such modification or amendment;
 - (e) be submitted in accordance to the relevant reporting frequencies specified by this licence;
 - (f) be certified as accurate and representative by the licensee; and
 - (g) in the case of results of any environmental monitoring, be accompanied by a written interpretation setting out their significance.
- 3.6 Copies of all environmental monitoring data obtained by the licensee which relates to the facility shall be forwarded to the Agency at the frequencies set out in Schedule D to this licence.
- 3.7 In the event of any incident which relates to discharges to surface water, the licensee shall notify the Southern Regional Fishery Board as soon as practicable by telephone and in writing (by facsimile if available) and in any case not later than 10:00am on the following working day after such an incident.
- 3.8 Unless otherwise agreed in writing with the Agency, all written records, reports and other documents required to be maintained under this licence, shall be retained by the licensee.
- 3.9 Unless otherwise agreed in advance in writing with the Agency, the licensee must give at least fourteen days notice to the Agency of the following events:
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- a) the cessation of waste disposal activities at the facility for a period in excess of twenty-eight days;
 - b) the re-commencement of waste disposal activities at the facility following a period of cessation referred to at a) above.
- 3.10 The licensee shall provide copies of any written records, reports and other documents referred to in this licence to the Agency upon written request, within the time specified in writing by the Agency.
- 3.11 The licensee shall keep the following documents at the facility office referred to in *Condition 4.5*.
- a) the current waste licence relating to the facility;
 - b) any previous waste licence in respect of the facility;
 - c) the current EMS for the facility;
 - d) the previous year's AER for the facility;
 - e) all written procedures produced by the licensee which relate to the licensed activities.
- 3.12 The licensee shall maintain a written record for each load of waste arriving at the facility. The licensee shall record the following:
- a) the name of the carrier;
 - b) the vehicle registration number;
 - c) the name of the producer(s)/collector(s) of the waste as appropriate;
 - d) a description of the waste;
 - e) the quantity of the waste, recorded in tonnes;
 - f) the name of the person checking the load; and,
 - g) 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.
- 3.13 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.
- 3.14 The licensee shall maintain a written record of all complaints of an environmental nature related 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.
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Reason : *To provide for the notification of incidents, to update information on the activity and to provide for the keeping of records.*

CONDITION 4 SITE INFRASTRUCTURE

4.1 The licensee shall establish all infrastructure referred to in this licence as instructed by the Agency.

4.2 Site Notice Board

4.2.1 Within *three months* of the date of grant of this licence, the licensee shall provide and maintain a notice board on the facility so that it is legible to persons outside the main entrance to the facility. The minimum dimensions of the identification board shall be 1200 mm by 750 mm.

4.2.2 The board shall clearly show:

- a) the name and telephone number of the facility;
- b) the normal hours of opening;
- c) the name, address and telephone number of the licence holder;
- d) an emergency out of hours contact telephone number;
- e) the name, address and telephone number of the operator of the facility;
- f) the licence reference number;
- g) where and when environmental monitoring information relating to the facility can be obtained.

4.3 Site Security

4.3.1 Within *six months* of the date of grant of this licence, and having regard to *Condition 8.2*, the licensee shall carry out a review of the site security arrangements for the site, as described in *Attachment D.1.A* and shown on *Drawing No. DLS/98/02RevB - Site Plan*, and submit to the Agency for its agreement a report to include any improvements considered necessary.

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

- a) a temporary repair shall be made by the end of the working day; and,
- b) a repair to the standard of the original gates and/or fencing shall be undertaken within three working days or as otherwise agreed in writing with the Agency.

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

4.4 Site Roads and Hardstanding

4.4.1 Site roads shall be as outlined in *Attachment D.1.B*.

4.4.2 Within *three months* of the date of grant of this licence, the licensee shall submit to the Agency for its agreement a proposal for a hardstanding area to incorporate

the public tipping container and recycling banks. The permanent public tipping area shall be installed within a timeframe agreed by the Agency.

- 4.5 The licensee shall maintain an office on the facility, at the location shown in *Drawing No. DLS/98/02RevB - Site Plan* and referred to therein as the Weighbridge Office. The Weighbridge Office shall be maintained in a manner suitable for the processing and storing of documentation.
- 4.6 The licensee shall provide and maintain a working telephone and facsimile machine in the weighbridge office specified in *Condition 4.5* above.
- 4.7 Within *three months* of the date of grant of this licence, proposals for a Waste Inspection Area and Waste Quarantine Area shall be submitted to the Agency for its agreement. The licensee shall ensure that this area 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 suitably and clearly segregated from each other.
- 4.8 The hardstanding area and waste inspection and quarantine areas referred to in Conditions 4.4.2 and 4.7 shall:
- a) be constructed with a hard impervious base graded to a longitudinal cross-sectional fall;
 - b) be contained by an impervious bund not less than 100 mm high; and,
 - c) drain only to a sump.
- 4.9 Within *three months* of the date of grant of this licence, the licensee shall carry out a review of the road cleansing procedures referred to in *Attachment F.5*, and submit to the Agency for its agreement a report to include any improvements considered necessary.
- 4.10 Unless otherwise agreed in writing with the Agency, the licensee shall maintain the weighbridge at the location shown in *Drawing No. DLS/98/02RevB - Site Plan*.
- 4.11 The licensee shall provide and use adequate lighting during the operation of the facility in hours of darkness.
- 4.12 Unless otherwise agreed in writing with the Agency, the licensee shall maintain the septic tank and sealed pipe system as described in *Attachment D.1.L* and shown on *Drawings No. DLS/98/02RevB - Site Plan* and *No. DLS/99/10 - Septic Tank Details*.
- 4.13 Fuel Storage
- 4.13.1 Within *three months* of the date of grant of this licence, a proposal for a fuel storage area or for a bunded mobile fuel storage tank shall be submitted to the Agency for its agreement.
- 4.13.2 All tank and drum storage areas shall be rendered impervious to the materials stored therein. In addition, 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.
- 4.13.3 All drainage from bunded areas shall be diverted for collection and safe disposal.
- 4.13.4 All inlets, outlets, vent pipes, valves and gauges must be within the bunded area.
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- 4.13.5 The integrity and water tightness of all the bunds, tanks and containers and their resistance to penetration by water or other materials stored therein shall be tested and demonstrated by the licensee and shall be reported to the Agency within six months of the date of grant of this licence. This testing shall be carried out by the licensee at least once every three years thereafter and reported to the Agency on each occasion. The licensee shall also submit to the Agency for its agreement in each case a written report on the storage of fuels on site. A written record of all integrity tests and any maintenance or remedial work arising from them shall be maintained by the licensee.
- 4.13.6 All tanks and containers shall be labelled to clearly indicate their contents.
- 4.14 Within *six months* of the date of grant of this licence, the licensee shall submit to the Agency for its agreement, details for the storage of fridges on site and the procedures for de-gassing of CFC's from these fridges.
- 4.15 Specified Engineering Works
- 4.15.1 The licensee shall submit written proposals for all Specified Engineering Works, as defined in *Schedule E: Specified Engineering Works*, to the Agency for its agreement prior to any such works being carried out. No such works shall be carried out without the prior agreement of the Agency.
- 4.15.2 All specified engineering works shall be supervised by a competent person(s) agreed in writing in advance by the Agency and that person, or persons, shall be present at all times during which relevant works are being undertaken.
- 4.15.3 Following the completion of all specified engineering works, the licensee shall submit a construction quality assurance validation report to the Agency. The validation 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) where relevant a drawing and sections showing the location of all samples and tests carried out;
 - e) daily records sheets/diary;
 - f) name(s) of contractor(s)/individual(s) responsible for undertaking the 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; and
 - i) any other information requested in writing by the Agency.
- 4.16 Landfill Lining:
- 4.16.1 Future cells shall be lined so that the permeability and thickness of the base and sides satisfy the following; $K \leq 1.0 \times 10^{-9} \text{ m/s}$ and *thickness* $\geq 1 \text{ m}$. Where the geological barrier does not naturally meet the above conditions it may be engineered and reinforced to give equivalent protection. An artificially established barrier should be no less than 0.5 m thick.
- 4.17 Leachate Management
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- 4.17.1 Unless otherwise agreed in writing with the Agency, leachate management at the facility shall be carried out as described in Attachment D.4 and shown in *Drawings No. DLS/99/12 - Leachate Collection System* and *DLS/99/13 - Leachate Detection System*.
- 4.17.2 The leachate storage tanker shall be sited in such a way that any leakages or spillages shall be contained in the leachate storage lagoon.
- 4.17.3 The frequency of removal from the lagoon by tanker shall be such that a minimum freeboard of 0.75m shall be maintained in the leachate lagoon at all times.
- 4.17.4 Leachate levels in Cells No. 8 and 9, and the intended Cell No. 10, shall not exceed a level of 1.0m over the top of the liner.
- 4.17.5 The integrity of the parts of the leachate collection systems outside of the cell areas, including the leachate storage lagoon, shall be tested by the licensee and shall be reported to the Agency within *six months* of the date of grant of this licence.
- 4.17.6 Within *three months* from the date of grant of this licence Monitoring Borehole No. 11 should be plugged and backfilled in accordance with BS 5930: 1981 to prevent potential contamination pathways. Similarly Monitoring Borehole No. 13 should be plugged and backfilled prior to the construction of Cell No. 10.

4.18 Landfill Gas Management:

- 4.18.1 Landfill gas generated at the site shall be vented to the atmosphere in accordance with the landfill gas management scheme set down in *Attachment D.5* and shown in *Drawing No. DLS/98/05RevC - Monitoring Points* unless otherwise agreed in advance with the Agency.
- 4.18.2 Within *six months* of the date of grant of this licence, a proposal for the collection and flaring of landfill gas shall be submitted to the Agency for its agreement.
- 4.18.3 Within *twelve months* of the date of grant of this licence, a proposal for the utilisation of landfill gas as an energy resource shall be submitted to the Agency for its agreement.
- 4.18.4 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.

4.19 Capping

- 4.19.1 Within *six months* of the date of grant of this licence the licensee shall submit a proposal including timeframe, for final capping of all landfill cells to the Agency for its agreement. The proposal shall provide for the following:
- (i) topsoil and subsoil depth shall be a minimum of 1m;
 - (ii) a drainage layer to allow for drainage to surface water drains or similar drainage outlet;
 - (iii) a barrier layer, comprising of a mineral layer and/or synthetic layer as required; and

(iv) a gas collection layer as required.

Reason: *To provide for the protection of the environment.*

CONDITION 5 WASTE ACCEPTANCE AND HANDLING

- 5.1. No liquid wastes shall be disposed of in the landfill.
 - 5.2. Subject to *Condition 5.1* only those Waste Types and quantities listed in *Tables E.1.1 and E.1.2* (as amended in correspondence of 28th August 1998), and *Table E.1.3* of the application shall be disposed of in the landfill unless the prior written agreement of the Agency has been obtained.
 - 5.3. Within *six months* of the date of grant of this licence, the licensee shall submit to the Agency for agreement detailed written procedures for the acceptance of waste. Prior to this waste acceptance shall be carried out in accordance with those described in *Attachment E.2* and to include those provisions of waste acceptance referred to in *Attachments F.1 and F.2*.
 - 5.4. Subject to *Condition 5.3* waste loads scheduled for inspection shall tip into the Waste Inspection Area unless otherwise agreed in advance with the Agency. A record of all such inspections shall be maintained. All wastes shall be checked at the working face to ensure that they comply with the requirements of the licence. Any wastes deemed to be in contravention of this licence and/or unsuitable for disposal at this facility shall be removed for disposal at an appropriate alternative facility. Such waste shall be stored in the Waste Quarantine Area only and may be stored for a maximum of twenty-four hours.
 - 5.5. The quantity of wastes to be accepted for disposal at the landfill, shall not exceed 40,000 tonnes per annum, unless otherwise agreed in advance with the Agency.
 - 5.6. Wastes shall not be deposited in any new cell without the prior agreement of the Agency.
 - 5.7. Scavenging shall not be permitted at the facility.
 - 5.8. Waste shall only be accepted at the facility 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 unless otherwise agreed in advance with the Agency.
 - 5.9. Sewage sludge
 - 5.9.1. Sewage sludge accepted for disposal at the facility shall be disposed of in accordance with the guidance detailed in Section 4.4 of the Agency's *Landfill Operational Practices Manual*, or as otherwise agreed with the Agency.
 - 5.9.2. Lime treated sewage sludge accepted at the facility for the purposes of mixing with soil and subsoil, in order for use as a soil conditioner in the reinstatement of the site, shall be deposited in the manner detailed in *Attachment E.3* such that any percolation from the sludge is contained within the cell in question. Any deviation from this shall be subject to the prior agreement of the Agency.
 - 5.10. Bonded asbestos shall be accepted at the facility subject to the details in *Attachment E.3*.
 - 5.11. Unless the prior written agreement of the Agency is given, the following shall apply at the landfill:
 - a) only one working face shall exist at the landfill at any one time for the deposit of waste other than cover or restoration materials;
-

- b) the working face of the landfill shall be no more than 2.5 metres in height after compaction, no more than 25 metres wide and have a slope no greater than 1 in 3; and,
 - c) all waste deposited at the working face shall be compacted as soon as is practicable and at any rate prior to the end of the working day.
- 5.12. The working face of the operational cell shall, at the end of each day, be covered with material suitable to minimise any nuisances occurring. 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.
- 5.13. A steel wheeled compactor or other such vehicle as agreed with the Agency shall be used for compacting all waste other than that used for restoration or construction purposes.
- 5.14. In order to prevent the formation of voids, all hollow objects and large articles deposited on the site shall be crushed, broken up, flattened or otherwise treated.
- 5.15. Wastes once deposited and covered shall not be excavated, disturbed or otherwise picked over without prior written agreement from the Agency.
- 5.16. No smoking shall be allowed at the facility, unless otherwise agreed with the Agency.

Reason: *To provide for the acceptance and management of wastes authorised under this waste licence.*

CONDITION 6 ENVIRONMENTAL NUISANCES

- 6.1. The licensee shall, at a minimum of one week intervals, inspect the facility and its immediate surrounds for nuisances caused by vermin and odours. Written records shall be made of all inspections and any actions taken as a result of these inspections.
- 6.2. The licensee shall ensure that birds do not give rise to nuisance at the facility or the immediate area of the facility. Within *three months* of the date of grant of this licence, the licensee shall submit to the Agency for its agreement a report on the bird control measures in place, to include any improvements considered necessary.
- 6.3. The road network in the vicinity of the facility shall be kept free from any debris caused by vehicles entering or leaving the facility. Any such debris or deposited materials shall be removed without delay.
- 6.4. The licensee shall submit proposals for road maintenance/improvements, traffic control and traffic management along the access roads to the Agency for its agreement within *six months* of the date of grant of this licence.
- 6.5. The measures and infrastructure described in *Attachment F.3* shall be applied to control litter at the facility.
- 6.6. All loose litter accumulated within the facility and its environs, excluding that which is deposited on the working face, shall be removed and appropriately disposed of on a daily basis.
- 6.7. Any waste placed on or in the vicinity of the facility, other than in accordance with the requirements of this licence, shall be removed by the licensee immediately and in any event by 10:00am of the next working day, after such waste is discovered. Such waste shall be disposed of at an appropriate facility.
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- 6.8. The licensee shall ensure that all waste being delivered to the facility is appropriately covered.
- 6.9. 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.
- 6.10. The licensee shall ensure that the activities shall be carried out in a manner such that odours do not result in significant impairment of, or significant interference with amenities or the environment beyond the facility boundary.
- 6.11. The licensee shall ensure that vermin, flies and dust do not give rise to nuisance at the facility or the immediate area of the facility. Any method used by the licensee to control any such nuisance shall not cause environmental pollution.

Reason: To provide for the control of nuisance.

CONDITION 7 EMISSIONS AND ENVIRONMENTAL IMPACTS

- 7.1. No specified emission from the facility shall exceed the emission limit values set out in *Schedule G: Emissions* of this licence. There shall be no other emissions of environmental significance.
 - 7.2. 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.
 - 7.3. 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.
 - 7.4. There shall be no clearly audible tonal component in the noise emissions from the activity at the facility boundary.
 - 7.5. The following are the trigger levels for landfill gas emissions from the facility measured in any service on 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; and
 - b) Carbon dioxide, greater than or equal to 1.5% v/v.
 - 7.6. All surface water collected from the hardstanding areas, referred to in *Condition 4* shall be diverted to the leachate holding tank.
 - 7.7. There shall be no direct emissions to groundwater.
 - 7.8. There shall be no leachate discharges to surface water.
 - 7.9. All leachate tankered from the facility shall be transported to Kilkenny Main Drainage Treatment Plant, Purcellsinch, Kilkenny and disposed of there unless otherwise agreed in advance with the Agency.
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Reason: To control emissions from the facility and provide for the protection of the environment.

CONDITION 8 RESTORATION AND AFTERCARE

- 8.1. Unless otherwise agreed in advance with the Agency, the final profile of the facility shall be in accordance with that shown in *Drawing No. DLS/98/06 - Restoration Plan*. Within *six months* of the date of grant of this licence, the licensee shall submit details of landfilling, to achieve final contours, to the Agency for its agreement.
- 8.2. Within *six months* of the date of grant of this licence, the licensee shall submit to the Agency for its agreement a Restoration and Aftercare Plan for the facility, subject to the following:
- 8.2.1. An archaeologist shall be engaged to assess the potential archaeological implications of the Restoration Scheme with regard to the following:
- 8.2.1.1. the part of the old stone wall forming a boundary between the landfill site and the cottage lands (referred to in section *KK014-061 - Dunmore Cottage* in both the waste licence application and EIS); and
- 8.2.1.2. the possible enclosure at the south eastern corner of Cell No.8 (referred to in section *KK014-119-Possible Enclosure* in both the waste licence application and EIS)
- 8.2.1.3. The recommendations in section 5 of the Ecological Report in *Attachment C.4* be carried out
- Within *six months* of the date of grant of this licence the archaeologists report along with any subsequent recommendations regarding the Restoration Scheme shall be forwarded to the Agency for its agreement.
- 8.3. 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.
- 8.4. No material or object that is incompatible with the proposed restoration of the site shall be present within one metre of the final soil surface levels. No asbestos waste shall be present within 2.5 metres of the final surface levels.

Reason: To provide for the restoration and aftercare of the facility.

CONDITION 9 ENVIRONMENTAL MONITORING

- 9.1. The licensee shall carry out such monitoring and at such locations and frequencies as set out in *Schedule F: Monitoring* and as specified in the Conditions of this licence.
- 9.2. Within *six months* from the date of grant of this licence, the licensee shall submit to the Agency for its agreement details of the ecological monitoring proposed to be carried out in *Attachment J.2*.

- 9.3. Within *three months* from the date of grant of this licence, the licensee shall submit to the Agency for its agreement details of a permanent gas monitoring system to be installed in the site offices.
- 9.4. The licensee shall within *six months* of the grant of this licence, submit to the Agency for agreement revised noise monitoring proposals to include at least one other noise monitoring location along the south west boundary of the facility. Such proposals shall address the establishment of noise levels (day time and night time) at the proposed monitoring locations as a result of the operations on site during and outside of normal operations at the facility.
- 9.5. Within *six months* from the date of grant of this licence, the licensee shall submit proposals for the monitoring of dust levels at four locations along the facility boundary for agreement with the Agency.
- 9.6. Within *three months* from the date of grant of this licence, the licensee shall submit twelve figure national grid references for each leachate monitoring point referred to in *Table F.4.3 of Schedule F.4.*
- 9.7. The licensee shall within *three months* of the grant of this licence submit a proposal for an investigation into the cause, nature and extent of the groundwater contamination in the vicinity of the site, in so far as its relates to the site, to the Agency for its agreement.
- 9.8. The licensee shall provide safe and permanent access to all on-site sampling and monitoring points and off-site points as required by the Agency.
- 9.9. Ionic balances shall be carried out on groundwater and surface water monitoring results performed annually.
- 9.10. 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 or discharge or environmental parameter.
- 9.11. The licensee shall amend the frequency, locations, methods and scope of monitoring, sampling, analyses and investigations 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.
- 9.12. Unless otherwise agreed in writing with the Agency, a written record shall be kept of the names, qualifications and a summary of relevant experience 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.
- 9.13. The licensee shall maintain all sampling and monitoring points so that they may be used for the representative sampling and monitoring.
- 9.14. A topographical survey including the void space shall be carried out within *three months* of the date of grant of this licence. It shall be repeated *annually* thereafter. The survey shall be in accordance with any written instructions issued by the Agency.

Reason: *To ensure compliance with the requirements of other conditions of this licence by provision of a satisfactory system of measurement and monitoring of emissions.*

CONDITION 10 CONTINGENCY ARRANGEMENTS

- 10.1. The licensee shall, 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.
- 10.2. Contingency Arrangements for the facility shall be as detailed in *Attachment K* and in *Section K* of information received on 31st August 1998.
- 10.3. 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.
- 10.4. 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.
- 10.5. No waste shall be burnt within the boundaries of the facility. A fire at the facility shall be treated as an emergency. Immediate action shall be taken to extinguish it and the appropriate authorities notified.
- 10.6. In the event that monitoring of local wells (identified in *Condition 9*) 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 incident. The licensee shall submit to the Agency for its agreement and within a time specified in writing by the Agency, written proposals for the provision of an alternative supply of water to those affected.
- 10.7. Unless otherwise notified in writing by the Agency, in the case of repeat incidents, in the event that any monitoring, sampling or observations indicate that an incident has, or may have, taken place, 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;
 - c) isolate the source of the 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 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.

Reason: To provide for the protection of the environment.

CONDITION 11 CHARGES AND FINANCIAL PROVISIONS

11.1 Agency Charges

11.1.1 The licensee shall pay to the Agency an annual contribution of £13,535 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 2000 and subsequent years, not later than January 31 of each year, pay to the Agency this amount updated in accordance with changes in the Consumer Price Index from the date of the licence to the renewal date. The updated amount shall be notified to the licensee by the Agency. For 1999, the licensee shall pay a pro rata amount from the date of this licence to 31st December 1999. This amount shall be paid to the Agency within *one month* of the date of grant of this licence.

11.1.2 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.

11.2 Financial Provision for Decommissioning, Restoration and Aftercare

11.2.1 The licensee shall from a date to be set by the Agency establish and maintain a fund, or other form of approved security, that is adequate to assure the Agency that the licensee is at all times financially capable of implementing the Decommissioning and Aftercare Plan required by Condition 8.2. The type of fund and means of its release/recovery shall be agreed in writing by the Agency prior to its establishment.

11.2.2 The fund shall be maintained in an amount always sufficient to underwrite the current Decommissioning and Aftercare Plan.

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

11.2.4 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 decommission, restoration and aftercare cost

ECOST = Existing decommission 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 Activities

Activities authorised by the licence shall be restricted to those described below.

Waste Management Act, 1996: Third Schedule ^{Note 1}	
Class 1.	Deposit on, in or under land (including landfill): This activity is limited to the disposal of the waste types specified in Condition 5.1.
Class 2.	Land treatment, including biodegradation of liquid or sludge discards in soils: This activity is limited to deposition of treated de-watered sludges in the landfill.
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 leachate holding lagoon and the acceptance of sewage sludge, which is not lime treated, for co-disposed with municipal solid waste.
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 the waste types specified in Condition 5.1.

Note 1: Any reference to an activity Class is to be taken as being from the Third Schedule of the Waste Management Act, 1996, unless otherwise stated.

Waste Management Act, 1996: Fourth Schedule ^{Note 1}	
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 of Christmas tree shavings as a soil conditioner for mixing with topsoil in the reinstatement of the site.
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: The use of collection receptacles for recyclable materials such as glass, cans and textiles.

Note 1: Any reference to an activity Class is to be taken as being from the Fourth Schedule of the Waste Management Act, 1996, unless otherwise stated.

SCHEDULE B Content of the Environmental Management Programme

Environmental Management Programme

Items specified to be contained in an Environmental Management Plan in the Landfill Operational Practices Manual published by the Agency, or otherwise as agreed with the Agency

Timescale for achieving the objectives and targets listed in the Schedule of Objectives and Targets

Designation of Responsibility for Achieving Targets and Objectives

Other items as specified by the Agency

SCHEDULE C Content of the Annual Environmental Report

Annual Environmental Report Content ^{NOTE 1}

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 site and year in which final capacity is expected to be reached.

Area occupied by waste.

Methods of deposition of waste.

Summary report on emissions (Certified results/data sheets to be attached as Appendices)

Summary of results and interpretations of environmental monitoring, including plans of all monitoring locations including 12 digit grid references.

Resource and energy consumption summary.

Proposed development of the site 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 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 site.

Estimated annual and cumulative quantity of indirect emissions to groundwater.

Monthly water balance calculation and interpretation.

Meteorological Report.

Schedule of Environmental Objectives and Targets for the forthcoming year.

Report on the progress towards achievement of the Environmental Objectives and Targets contained in previous year's report.

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.

Report on environmental nuisance control at the facility for the previous year and for the forthcoming year.

Reported incidents and Complaints summaries.

Reports on financial provision made under this licence, management and staffing structure of the facility.

Report on programme for public information.

Any other items specified by the Agency.

NOTE 1 Content to be revised subject to the written agreement of the Agency after cessation of waste acceptance at the facility.

SCHEDULE D Recording and Reporting to the Agency

Table D.1 Recurring Reports

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	Twelve months from the date of grant of this 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 this 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.
Ecological Monitoring	Note 2	One month after end of the year being reported on.
Topographical Survey	Annually	Three months from the date of grant of this licence and one month after the end of each year thereafter.

Note 1: Unless altered at the request of the Agency

Note 2: As detailed in Attachment J.2

Table D.2 Once-off Reports

Report and Contents	Condition Number	Report Submission Date (Number of months within which to submit, from date of granting of licence, unless otherwise specified)
Environmental Management System		
(i) EMS Proposals	2.1.1	18
(ii) Schedule of Objectives and Targets	2.2.1	12
(iii) Environmental Management Programme	2.3.1	12
(iv) Management Structure	2.6.1	as and when any changes are proposed
(v) Communication Programme	2.7.1	
Infrastructure/Control Measures		
(i) Proposals for site security	4.3.1	6
(ii) Proposals for hardstanding areas	4.4.2	3
(iii) Proposals for waste inspection and quarantine areas	4.7	3
(iv) Review of road cleansing procedures	4.9	3
(v) Proposals for bunded fuel storage	4.13.1	3
(vi) Details of fridge storage and degassing	4.14	6
(vii) Integrity of leachate collection system.	4.17.5	6
(viii) Active Landfill Gas Control System: Flare	4.18.2	6
(ix) Proposals for landfill gas utilisation	4.18.3	12
(x) Capping	4.19	6
(xi) Review of bird control measures	6.2	3
(xii) Proposals for access roads	6.4	6
Waste Acceptance Procedures		
(i) Waste acceptance procedures	5.3	6
Restoration & Aftercare		
(i) Details of landfilling	8.1	6
(ii) Restoration & Aftercare Plan	8.2	6
(iii) Archaeological Report	8.2.1	6
Environmental Monitoring		
(i) Ecological Monitoring Proposals	9.2	6
(ii) A proposal for a permanent gas monitoring system to be installed in the site offices.	9.3	3
(iii) Revised noise monitoring proposals	9.4	6
(iv) Dust monitoring proposals	9.5	6
(v) 12 digit grid references for leachate monitoring locations.	9.6	3
(vi) Groundwater Investigation	9.7	3
Contingency Arrangements		
(i) Emergency Response Procedure	10.1	6
(ii) Contingency proposals for alternative supply of water to residents if necessary	10.6	As specified by the Agency

SCHEDULE E Specified Engineering Works

Specified Engineering Works

Development of Phases and future Cells of the facility including preparatory works and lining.

Landfill cap installation, including temporary and intermediate capping, installation and all other containment works (including any containment works relating to leachate control).

Fencing and site security works.

Design and construction of hardstanding areas, site roads, etc.

Bunding of fuel and oil storage areas.

Installation of landfill gas management and monitoring systems.

Installation of leachate management, detection, storage, treatment, monitoring and control systems.

Installation of alternative drinking water supplies.

Installation of groundwater control and/or monitoring systems.

Surface water management works.

Restoration and Aftercare Works.

Any other works notified in writing by the Agency.

SCHEDULE F Monitoring

Monitoring to be carried out as specified below.

F.1 Landfill Gas

Landfill gas monitoring locations shall be those as set out in Tables F.1.1 & Table F.1.2; and subject to Condition 9.3 the site offices.

Table F.1.1 Perimeter Monitoring Locations

STATION	EASTING	NORTHING
GM 1	249525	160483
GM 2	249592	160435
GM 3	249808	160277
GM 4	249873	160445
GM 5	249880	160514
GM 7	249725	160611
GM 8	249636	160715
GM 9	249535	160608
GM 6 ^{Note 1}	249682	160489

Note 1: Located in landfill

Table F.1.2 Vent Pipe Locations

STATION	EASTING	NORTHING
VP1	249 769	160 359
VP2	249 789	160 302
VP3	249 762	160 320
VP4	249 717	160 353
VP5	249 694	160 407
VP6	249 734	160 381
VP7	249 694	160 407
VP8	249 632	160 502
VP9	249 611	160 475
VP10	249 665	160 498
VP11	249 648	160 461
VP12	249 703	160 484
VP13	249 681	160 443
VP14	249 647	160 404
VP15	249 648	160 637
VP16	249 628	160 666
VP17	249 595	160 641
VP18	249 607	160 612

Table F.1.3 Landfill Gas Monitoring Frequency and Technique

Parameter	Monitoring Frequency		Analysis Method ^{Note1} /Technique ^{Note2}
	Gas Boreholes/ Vents/Wells	Site Offices	
Methane (CH ₄) % v/v	Monthly	Weekly	Infrared analyser/flame ionisation detector
Carbon dioxide (CO ₂)%v/v	Monthly	Weekly	Infrared analyser/ flame ionisation detector
Oxygen(O ₂) %v/v	Monthly	Weekly	Electrochemical cell
Atmospheric Pressure	Monthly	Weekly	Standard
Temperature	Monthly	Weekly	Standard

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

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

F.2 Dust

Four dust monitoring locations to be agreed in advance with the Agency.

Table F.2.1 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) using 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.

F.3 Noise

Noise monitoring locations shall be those as set out in Table F.3.1.

Table F.3.1 Noise Monitoring Locations

STATION	EASTING	NORTHING
Landfill S.E. Boundary	249 813	160 289
Dunmore Cottage	249 424	160 893
Landfill S.W. Boundary ^{Note 1}		

Note 1: Grid reference to be supplied within six months of the date of grant of this licence.

Table F.3.2 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."

F.4 Surface Water, Groundwater and Leachate

- Surface Water

Surface water monitoring locations as set out in Table F.4.1, shall be monitored in accordance with the requirements of Table F.4.4.

Table F.4.1 Surface Water Monitoring Locations

STATION	EASTING	NORTHING
Stream A - Upstream	250 004	160 632
Stream A - Downstream	249 531	160 464

- **Groundwater**

Groundwater monitoring locations as set out in Table F.4.2, shall be monitored in accordance with the requirements of Table F.4.4.

Table F.4.2 Groundwater Monitoring Locations

STATION	EASTING	NORTHING
No. 3	250 006	160 554
GW1	249 671	160 921
No. 14	249 548	160 506
GW2	249 866	160 445
GW3	249 496	160 506
GW4	249 563	160 456
MW1	249 619	160 375
No.15	249 323	160 215
No. 6	249 561	160 234

- **Leachate**

Leachate monitoring locations as set out in Table F.4.3, shall be monitored in accordance with the requirements of Tables F.4.4 & F.4.5.

Table F.4.3 Leachate Monitoring Locations (as indicated on *Drawing No. DLS/99/12 - Leachate Collection System*).

LEACHATE INSPECTION MANHOLES	EASTING	NORTHING
Leachate Holding Lagoon	249 566	160 484
Leachate Manhole 1	249 649	160 608
Leachate Manhole 2 ^{Note 1}		
Leachate Manhole 3 ^{Note 1}		
Leachate Manhole 4 ^{Note 1}		
Leachate Manhole 5 ^{Note 1}		
Other locations ^{Note 1}		

Note 1: Co-ordinates to be forwarded as per Condition 9.6

Table F.4.4 Water and Leachate - Parameters /Frequency

Parameter ^{Note 1}	SURFACE WATER Monitoring Frequency	GROUNDWATER Monitoring Frequency	LEACHATE Monitoring Frequency ^{Note 2}
Visual Inspection/Odour	Weekly	Quarterly	Quarterly ^{Note 3}
Groundwater Level	Not Applicable	Monthly	Not Applicable
Leachate Level	Not Applicable	Not Applicable	Weekly
Ammoniacal Nitrogen	Quarterly	Monthly	Quarterly
BOD	Quarterly	Not Applicable	Quarterly
COD	Quarterly	Not Applicable	Quarterly
Chloride	Quarterly	Quarterly	Quarterly
Dissolved Oxygen	Quarterly	Quarterly	Not Applicable
Electrical Conductivity	Quarterly	Monthly	Quarterly
pH	Quarterly	Monthly	Quarterly
Total Suspended Solids	Quarterly	Not Applicable	Quarterly
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	Annually	Quarterly
Lead	Annually	Annually	Annually
List I/II organic substances ^{Note 4}	Annually	Annually	Annually
Magnesium	Annually	Annually	Annually
Manganese	Annually	Annually	Annually
Mercury	Annually	Annually	Annually
Potassium	Annually	Quarterly	Quarterly
Sulphate	Annually	Annually	Annually
Sodium	Annually	Quarterly	Quarterly
Total Alkalinity	Annually	Annually	Not Applicable
Total Phosphorus or 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 5}	Not Applicable	Annually	Annually
Total Coliforms ^{Note 5}	Not Applicable	Annually	Annually

Note 1: All the analysis shall be carried out by a competent laboratory using standard and internationally accepted procedures. The testing laboratory and the testing procedures shall be agreed in writing with the Agency in advance.

Note 2: See also Table F.4.5.

Note 3: Where there is evident gross contamination of leachate, additional samples should be analysed.

Note 4: 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 EPA method 524 or equivalent), semi-volatiles (US EPA method 525 or equivalent, and pesticides (US EPA method 608 or equivalent).

Note 5: If there is evidence of bacterial contamination, the analysis at up gradient and downgradient monitoring points should include enumeration of total bacteria at 22°C and 37°C and faecal streptococci.

Table F.4.5 Leachate Monitoring Locations and Frequency

Parameters	Monitoring Location	Frequency	
		Operational	Aftercare
Leachate levels	Leachate Manhole No. 5	Weekly	Monthly
	Leachate Manholes No. 1,2,3 & 4	Weekly	Monthly
	Cell 10 - Proposed ^{Note 1}	Weekly	Monthly
	Leachate Lagoon ^{Note 2}	Daily Visual	Monthly
Leachate composition analysis	Leachate Manhole No. 5 & Leachate Detection Manhole No. 1	Notes 3 & 5	Notes 3 & 5
	Leachate Manhole No. 4	Notes 3 & 5	Notes 3 & 5

Note 1: To be agreed with the Agency.

Note 2: To include the level of freeboard in lagoon and the quantity of leachate discharged from the lagoon on a monthly basis.

Note 3: As per Table F.4.4

Note 4: At half the frequency specified in Table F.4.4 with a minimum of once per annum.

Note 5: For permanently capped cells or cells in aftercare phase monitoring shall be at half the frequency specified in Table F.4.4 with a minimum of once per annum.

F.5 Meteorological Monitoring

Meteorological monitoring data, as set out in Table F.5.1, to be obtained from Kilkenny Meteorological Station, Granges Road, Kilkenny.

Table F.5.1 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

SCHEDULE G Emission Limits

G.1 Noise Emissions: At Noise Sensitive Locations to be agreed in advance with the Agency.

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

G.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

G.3 Dust Deposition Limits: At locations to be agreed in advance with the Agency.

Level (mg/m ² /day) ^{Note 1}
350

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

Sealed by the seal of the Agency on this 23rd day of November, 1999.

PRESENT when the seal of the Agency was affixed hereto:

Anne Butler **Director/Authorised Person**