

This licence was amended on 17<sup>th</sup> of September 2007 under Section 42(B)1(c) of the Waste Management Acts, 1996 to 2005. The details of Amendment A must be read in conjunction with this licence. The amendment document is entitled Technical Amendment A.

**LICENCE REG NO. W0168-01 HAS CEASED (Never Commenced)**

Please note that Licence Reg. No. W0168-01 ceased to have effect from 8 June 2011



Headquarters  
P.O. Box 3000  
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Ireland

## WASTE LICENCE LANDFILL FOR NON-HAZARDOUS WASTE

<b>Waste Licence Register Number:</b>	168-1
<b>Licensee:</b>	Greenstar Recycling Holdings Limited
<b>Location of Facility:</b>	Usk Residual Landfill, Usk, Kilcullen, County Kildare

# INTRODUCTION

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

The licence is for the development and operation of a non-hazardous landfill in a sand/gravel quarry pit at Usk, Kilcullen, County Kildare. The facility will cover 19.3 hectares while the footprint of the landfill will be approximately 12.5 hectares. The landfill will accept non-putrescible, non-hazardous commercial, industrial and residual municipal waste for disposal and Construction & Demolition waste for recovery.

The facility will be designed to accept a total of 200,000 tonnes of waste per annum (180,000 for disposal and 20,000 tonnes for recovery). The anticipated lifetime of the landfill is ten years. The landfill will consist of six phases. A 100 metre zone between the non-hazardous landfill and any residence is required. This will reduce the non-hazardous landfill footprint as applied for by the applicant. Waste deposition within the 100 metre zone, between the quarry face and the non-hazardous liner, will be restricted to inert waste and lined with an inert waste specification liner. A 4 metre wide planting strip is required along the northeastern boundary.

The infrastructure to be developed at the facility includes a non-hazardous lining system, leachate collection and management, landfill gas collection and treatment, two weighbridges, a wheelwash, an administration building and waste inspection/quarantine areas. The licensee is required to install a surface water management system prior to the commencement of any other construction work at the facility.

The facility will be restored to agricultural and ecological use.

The licensee must manage and operate the facility to ensure the activities do not cause environmental pollution. The licensee is required to undertake regular environmental monitoring. The licensee must submit to the Agency all monitoring results together with a range of reports relating to the facility operation and management.

The licence sets out in detail the conditions under which Greenstar Recycling Holdings Limited will operate and manage this facility.

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# DECISION & REASONS FOR THE DECISION

## *Reasons for the Decision*

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

In reaching this decision the Agency has considered the application and supporting documentation received from the applicant, all submissions and objections received from other parties 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 Agency, under Section 40(1) of the said Act hereby grants this Waste Licence to Greenstar Recycling Holdings Limited to carry on the waste activities listed below at Usk Residual Landfill, Usk, Kilcullen, County Kildare 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*

<b>Class 1</b>	<b>Deposit on, in or under land (including landfill):</b> This activity is limited to the deposit of inert waste onto land in the area referred to in Condition 3.12.1.
<b>Class 4</b>	<b>Surface impoundment, including placement of liquid or sludge discards into pits, ponds or lagoons:</b> This activity is limited to the temporary storage and management of leachate at the facility.
<b>Class 5</b>	<b>Specially engineered landfill, including placement into lined discrete cells which are capped and isolated from one another and the environment:</b> This is the principal activity. This activity is limited to the construction of the landfill in distinct phases consisting of specially engineered lined cells, the deposit of non-hazardous commercial, industrial and residual municipal waste into these lined cells and the collection of leachate and landfill gas.
<b>Class 13</b>	<b>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:</b> This activity is limited to the temporary storage of unacceptable waste prior to its transport off-site to another facility.

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

<b>Class 4</b>	<b>Recycling or reclamation of other inorganic materials:</b> This activity is limited to the acceptance of recovered construction and demolition waste for use as cover and/or construction material at the facility.
<b>Class 9</b>	<b>Use of any waste principally as a fuel or other means to generate energy:</b> This activity is limited to utilisation of landfill gas at the facility.
<b>Class 11</b>	<b>Use of waste obtained from any activity referred to in a preceding paragraph of this Schedule:</b> This activity is limited to the acceptance of recovered construction and demolition waste for use as cover and/or construction material at the facility.
<b>Class 13</b>	<b>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:</b> This activity is limited to the temporary storage of recovered construction and demolition waste prior to reuse.

# 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.

<b>Adequate lighting</b>	20 lux measured at ground level.
<b>Agreement</b>	Agreement in writing.
<b>Annually</b>	At approximately twelve monthly intervals.
<b>Attachment</b>	Any reference to Attachments in this licence refers to attachments submitted as part of the waste licence application.
<b>Application</b>	The application by the licensee for this waste licence.
<b>Appropriate facility</b>	A waste management facility, duly authorised under relevant law and technically suitable.
<b>BAT</b>	Best Available Techniques as defined in Article 2(11) of Council Directive 96/61/EC concerning integrated pollution prevention and control.
<b>Biodegradable waste</b>	Any waste that is capable of undergoing anaerobic or aerobic decomposition, such as food, garden waste, sewage sludge, paper and paperboard.
<b>Condition</b>	A condition of this licence.
<b>Construction and Demolition Waste</b>	All wastes which arise from construction, renovation and demolition activities.
<b>Containment boom</b>	A boom which can contain spillages and prevent them from entering drains or watercourses.
<b>Daily Cover</b>	Is the term used to describe material spread (about 150mm if soil cover is used) over deposited waste at the end of each day. 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.
<b>Daytime</b>	0800 hrs to 2200 hrs.
<b>Documentation</b>	Any report, record, result, data, drawing, proposal, interpretation or other document in written or electronic form which is required by this licence.
<b>Drawing</b>	Any reference to a drawing or drawing number means a drawing or drawing number contained in the application, unless otherwise specified in this licence.
<b>Emergency</b>	Those occurrences defined in Condition 9.4.
<b>Emission Limits</b>	Those limits, including concentration limits and deposition levels established in <i>Schedule C: Emission Limits</i> , of this licence.
<b>European Waste Catalogue (EWC)</b>	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.

<b>Green waste</b>	Waste wood (excluding timber), plant matter such as grass cuttings, and other vegetation.
<b>Hours of Operation</b>	The hours during which the facility is authorised to be operational.
<b>Hours of Waste Acceptance</b>	The hours during which the facility is authorised to accept waste.
<b>Incident</b>	The following shall constitute an incident for the purposes of this licence:- <ul style="list-style-type: none"> <li>a) An emergency;</li> <li>b) Any emission which does not comply with the requirements of this licence;</li> <li>c) Any trigger level specified in this licence which is attained or exceeded;</li> <li>d) Any indication that environmental pollution has, or may have, taken place; and,</li> <li>e) The non-acceptance or rejection of waste at the facility.</li> </ul>
<b>Inert waste</b>	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.
<b>Intermediate Cover</b>	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.
<b>Landfill</b>	Refers to the area of the facility where the waste is disposed of by placement on the ground or on other waste.
<b>Landfill Gas</b>	Gases generated from the landfilled waste.
<b>LEL (Lower Explosive Limit)</b>	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.
<b>Licence</b>	A waste licence issued in accordance with the Act.
<b>Licensee</b>	Greenstar Recycling Holdings Limited.
<b>List I/II Organics</b>	Substances classified pursuant to EC Directives 76/464/EEC and 80/68/EEC.
<b>Liquid Waste</b>	Any waste in liquid form and containing less than 2% dry matter. Any waste tankered to the facility.
<b>Maintain</b>	Keep in a fit state, including such regular inspection, servicing and repair as may be necessary to adequately perform its function.
<b>Mobile Plant</b>	Self-propelled machinery used for the emplacement of wastes or for the construction of specified engineering works.
<b>Monthly</b>	A minimum of 12 times per year, at approximately monthly intervals.
<b>Night-time</b>	2200 hrs to 0800 hrs.
<b>Recyclable Materials</b>	Those waste types, such as cardboard, batteries, gas cylinders, etc which may be recycled.

<b>Residual Waste</b>	Residual waste means the fraction of waste remaining after treatment of the waste.
<b>Quarterly</b>	Means each period of three months beginning on the first day of January, April, July and October.
<b>Sample(s)</b>	Unless the context of this licence indicates to the contrary, samples shall include measurements by electronic instruments.
<b>SCADA system</b>	Supervisory Control and Data Acquisition system.
<b>Sludge</b>	The accumulation of solids resulting from chemical coagulation, flocculation and/or sedimentation after water or wastewater treatment with between 2% and 14% dry matter.
<b>Specified Emissions</b>	Those emissions listed in <i>Schedule C: Emission Limits</i> , of this licence.
<b>Specified Engineering Works</b>	Those engineering works listed in <i>Schedule B: Specified Engineering Works</i> , of this licence.
<b>Treated Sludge</b>	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.
<b>Treatment</b>	Treatment means the physical, thermal, chemical or biological processes, including sorting, that change the characteristics of the waste in order to reduce its volume or hazardous nature, facilitate its handling or enhance recovery.
<b>Trigger Level</b>	A parameter value specified in the licence, the achievement or exceedance of which requires certain actions to be taken by the licensee.
<b>Wastewater</b>	Contaminated water including water that has been used for washing and/or flushing (including foul water).
<b>White Goods</b>	Refrigerators, cookers, ovens and other similar appliances.
<b>EPA Working Day</b>	Refers to the following hours: 0900 hrs to 1730 hrs Monday to Friday inclusive.
<b>Working Face</b>	The area of the site in which waste other than cover material or material for the purposes of the construction of specified engineering works is being deposited.

## ***PART II CONDITIONS***

### **CONDITION 1 SCOPE OF THE LICENCE**

- 1.1. Waste activities at the facility shall be restricted to those listed and described in Part I: Activities Licensed and authorised by this licence.
- 1.2. For the purposes of this licence, the facility is the area of land outlined in red on Drawing No. Figure B2a *Site Location Plan* of the application. The licensee shall submit to the Agency for its agreement, prior to commencement of waste activities, details of the licensee's interest in all the land within the red boundary. 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. Non-hazardous residual Municipal Waste, Commercial Waste, Construction & Demolition Waste and Industrial Waste may be disposed of at the facility and inert Construction and Demolition waste may be recovered at the facility subject to the maximum quantities and other constraints specified in *Schedule A: Waste Acceptance* and in this licence.
- 1.5. Waste Acceptance
  - 1.5.1. Whole used tyres (other than bicycle tyres and tyres with an outside diameter greater than 1400mm) shall not be disposed of at the facility from 16 July 2003. Shredded tyres shall not be disposed of at the facility from 16 July 2006.
  - 1.5.2. No hazardous wastes, liquid wastes, sludges (other than treated industrial sludge with greater than 25% dry matter), vegetable matter wastes, food wastes or green wastes shall be disposed of or recovered at the facility.
  - 1.5.3. Inert Construction and Demolition waste may be recovered for lining/capping/development/ restoration purposes.
  - 1.5.4. The licensee shall ensure that only treated waste is accepted at the facility. This provision may not apply to inert wastes for which treatment is not technically feasible nor to any other waste for which such treatment does not contribute to the objectives of the Landfill Directive as set out in Article 1 of the Directive by reducing the quantity of the waste or the hazards to human health or the environment.
- 1.6. Waste Acceptance Hours and Hours of Operation
  - 1.6.1. Waste may be accepted at the facility only between the hours of 8:00 a.m. and 6:00 p.m. Monday to Friday inclusive and 8:00 a.m. and 2:00 p.m. on Saturdays.
  - 1.6.2. Treated industrial sludges shall be accepted at the facility only between the hours of 8:30 a.m. and 5.30 p.m. Monday to Friday inclusive. All sludges shall be covered immediately with other waste.
  - 1.6.3. The facility may be operated only between the hours of 8:00 a.m. and 7:00 p.m. Monday to Friday inclusive and 8:00 a.m. and 3:00 p.m. on Saturdays.
  - 1.6.4. Waste shall not be accepted at the facility on Sundays or Bank Holidays.
- 1.7. Where the Agency considers that a non-compliance with any condition of this licence has occurred, it may serve a notice on the licensee specifying:
  - 1.7.1. That only those wastes as specified, if any, in the notice are to be accepted at the facility after the date set down in the notice;



- 1.7.2. That the licensee shall undertake the works stipulated in the notice, and/or otherwise comply with the requirements of the notice as set down therein, within the time-scale contained in the notice; and,
- 1.7.3. That the licensee shall carry out any other requirement specified in the notice.

When the notice has been complied with, the licensee shall provide written confirmation that the requirements of the notice have been carried out. No waste, other than that which is stipulated in the notice, shall be accepted at the facility until written permission is received from the Agency.

- 1.8. Every plan, programme or proposal submitted to the Agency for its agreement pursuant to any condition of this licence shall include a proposed timescale for its implementation. The Agency may modify or alter any such plan, programme or proposal in so far as it considers such modification or alteration to be necessary and shall notify the licensee in writing of any such modification or alteration. Every such plan, programme or proposal shall be carried out within the timescale fixed by the Agency but shall not be undertaken without the agreement of the Agency. Every such plan, programme or proposal agreed by the Agency shall be covered by the conditions of this licence.

*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 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.
- 2.1.3 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 Prior to the commencement of waste activities, 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 twelve 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: -

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

2.3.2.3 Corrective Action Procedures

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

2.3.2.4 Awareness and Training Programme

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

2.4 Communications Programme

2.4.1 The licensee shall establish and maintain a Communications Programme to inform the local community and to ensure that members of the public can obtain information at the facility, at all reasonable times, concerning the environmental performance of the facility. This shall be established within six months of the date of grant of the licence.

*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 prior to the commencement of the licensed activities or as required by the conditions of this licence.
- 3.2 Specified Engineering Works
- 3.2.1 The licensee shall submit proposals for all Specified Engineering Works, as defined in *Schedule B: Specified Engineering Works*, of this licence, to the Agency for its agreement at least two months prior to the intended date of commencement of any such works. No such works shall be carried out without the prior agreement of the Agency.
- 3.2.2 All specified engineering works shall be supervised by a competent person(s) and that person, or persons, shall be present at all times during which relevant works are being undertaken.
- 3.2.3 Following the completion of all specified engineering works, the licensee shall complete a construction quality assurance validation. The validation report shall be made available to the Agency on request. The report shall include the following information:-
- a) A description of the works;
  - b) As-built drawings of the works;
  - c) Records and results of all tests carried out (including failures);
  - d) Drawings and sections showing the location of all samples and tests carried out;
  - e) Daily record sheets/diary;
  - f) Name(s) of contractor(s)/individual(s) responsible for undertaking the specified engineering works;
  - g) Name(s) of individual(s) responsible for supervision of works and for quality assurance validation of works;
  - h) Records of any problems and the remedial works carried out to resolve those problems; and,
  - i) Any other information requested in writing by the Agency.
- 3.3 Facility Notice Board
- 3.3.1 The licensee shall provide and maintain a Facility Notice Board on the facility so that it is legible to persons outside the main entrance to the facility. The minimum dimensions of the board shall be 1200 mm by 750 mm.
- 3.3.2 The board shall clearly show:-
- a) That the facility is a Landfill for Non-Hazardous Waste;
  - b) The name and telephone number of the facility;
  - c) The normal hours of opening;
  - d) The name of the licence holder;
  - e) An emergency out of hours contact telephone number;
  - f) The licence reference number; and,
  - g) Where environmental information relating to the facility can be obtained.

### 3.4 Facility Security

3.4.1 Security and stockproof fencing and gates shall be installed and maintained as described in Attachment D.1.a *Site Security Arrangements* of the application unless alterations are agreed by the Agency. The base of the fencing shall be set in the ground. Subject to the implementation of the restoration and aftercare plan and to the agreement of the Agency, the requirement for such site security may be removed.

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

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

### 3.5 Facility Roads and Hardstanding

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

### 3.6 Facility Office

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

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

### 3.7 Waste Inspection and Quarantine Areas

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

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

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

### 3.8 Weighbridge

3.8.1 The licensee shall provide and maintain two weighbridges at the facility.

### 3.9 Wheel Cleaning

3.9.1 The licensee shall establish and maintain a wheelwash at the facility. Drainage from this area shall be directed to the leachate collection system.

### 3.10 Waste Water Treatment Plant

3.10.1 The licensee shall provide and maintain a Wastewater Treatment system at the facility for the treatment of wastewater arising on-site from on-site buildings. Any percolation area shall satisfy the criteria set out in the *Wastewater Treatment Manual, Treatment Systems for Single Houses*, published by the Environmental Protection Agency. Alternatively effluent may be directed to the leachate collection system.

### 3.11 Tank and Drum Storage Areas

- 3.11.1 All tank and drum storage areas shall be rendered impervious to the materials stored therein.
- 3.11.2 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.
- 3.11.3 All drainage from bunded areas shall be diverted for collection and safe disposal.
- 3.11.4 All inlets, outlets, vent pipes, valves and gauges must be within the bunded area.
- 3.11.5 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.

### 3.12 Buffer Zone

- 3.12.1 The licensee shall maintain a minimum distance of 100 metres between the non-hazardous landfill footprint and any dwelling house (occupied or unoccupied) present at date of issue of licence. Waste deposition within the 100m zone, between the quarry face and the non-hazardous landfill liner, will be restricted to inert waste.
- 3.12.2 A zone in which no waste shall be landfilled, shall be provided and maintained within the facility as shown on Figure 5.2 *Contours of Completed Site* of the Environmental Impact Statement subject to the landscaping requirements of Condition 5.

### 3.13 Landfill Lining

- 3.13.1 The landfill base for all waste deposition areas shall comprise, as a minimum:-
- a) A subsoil layer at least three metres deep with a hydraulic conductivity of less than or equal to  $1 \times 10^{-7}$  m/s; and
  - b) Formation levels of landfill base shall be as shown on Figure 5.3 *Base Design and Leachate Management* of the Environmental Impact Statement and shall in any event be higher than the watertable.
- 3.13.2 Where inert waste or materials are to be placed outside the non-hazardous liner, the landfill liner, in addition to the landfill base requirements referred to above, shall as a minimum comprise of:-
- a) Liner side walls consisting of a mineral layer of a minimum thickness of 1m with a hydraulic conductivity of less than or equal to  $1 \times 10^{-7}$  m/s or similar with equivalent protection to the foregoing.
- 3.13.3 Where non-hazardous waste is to be placed, the landfill liner, in addition to the landfill base requirements referred to above, shall comprise of:-
- a) A composite liner consisting of a 1m layer of compacted soil with a hydraulic conductivity of less than or equal to  $1 \times 10^{-9}$  m/s, (or equivalent to be agreed with the Agency) overlain by a 2mm thick high density polyethylene (HDPE) layer;
  - b) A geotextile protection layer placed over the HDPE layer;

- c) A 500mm thick drainage layer placed over the geotextile layer with a minimum hydraulic conductivity of  $1 \times 10^{-3}$  m/s, of prewashed, uncrushed, granular, rounded stone (16 – 32 mm grain size) incorporating leachate collection drains (or equivalent to be agreed with the Agency); and
- d) The side walls shall be designed and constructed to achieve an equivalent protection.

3.13. 4 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. 5 All boreholes located in proposed landfilling areas shall be adequately sealed prior to the emplacement of the liner.

### 3.14 Leachate Management Infrastructure

3.14.1 Leachate management infrastructure shall be provided and maintained at the facility as described in Environmental Impact Statement, Chapter 5 *Leachate Management* and specified in Figure 5.3 *Base Design and Leachate Management* and Figure 5.6 *Site Facilities* the subject to:

- a) lined in accordance with Condition 3.13 above; and,
- b) leachate storage tank being constructed above ground level.

3.14.2 All structures for the storage and/or treatment of leachate shall be fully enclosed except for inlet and outlet piping.

### 3.15 Landfill Gas Management

3.15.1 Landfill gas extraction wells shall be provided in the lined cells so as to match the phased development of the cells. Landfill gas collection infrastructure, as described in the Article 16(1) response submitted to the Agency on 03/02/2003, shall be installed within two months of phases having been filled to the required level. Flaring of collected gases shall commence as soon as possible. Alternatively flaring with fuel assistance shall commence at any time stipulated by the Agency.

3.15.2 A Landfill Gas Flare and associated infrastructure shall be installed at the facility within twelve months of the date on which waste is first disposed of at the facility.

3.15.3 The Landfill Gas Flare shall be of an enclosed type design and the combustion air supply shall be controlled so as to achieve a minimum temperature of 1,000°C and 0.3 seconds retention time at this temperature. Independent certification of the flare design capacity shall be provided.

3.15.4 Flare unit efficiency shall be tested upon installation, upon commencement of landfill gas combustion and once every three years thereafter.

3.15.5 Until the operation of the landfill gas flare, passive landfill gas management at the facility shall be carried out. Landfill gas management and infrastructure shall meet the recommendations given in the Agency Manual on "Landfill Operational Practices".

3.15.6 Condensate will be returned to the leachate collection system.

3.15.7 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.

3.15.8 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.

### 3.16 Surface Water Management

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

- a) Two surface water retention ponds and associated surface water collection ditches located as shown on Figure 5.2 *Contours of Completed Site* of the Environmental Impact Statement. The surface water retention ponds (which will be lined, as agreed with the Agency, with overflow to a percolation area), associated surface water management infrastructure and the site access roads shall be constructed prior to the commencement of construction of the remainder of the facility;
- b) The surface water ponds shall be capable of dealing with all surface water run-off arising at the facility and will allow controlled soakaway to groundwater. The ponds shall have an inlet and outlet isolation mechanism and suitable settlement chambers installed immediately upstream. Collected solids from the settlement chambers which are not contaminated may be disposed of at the landfill;
- c) The surface water drainage ditches shall be lined and constructed in such a manner as to prevent erosion, stagnation and inadequate capacity; and,
- d) Drainage from hardstanding areas shall be diverted through a Class I by-pass separator to the surface water ponds or to the leachate collection system as shown on Figure 5.6 *Site Facilities* of the Environmental Impact Statement.

### 3.17 Groundwater Management

3.17.1 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.

### 3.18 SCADA System

3.18.1 Prior to the commencement of waste activities a SCADA system shall be installed and maintained at the facility. All facility operations linked to the SCADA system shall also have a manual control which will be reverted to in the event of break in power supply or during maintenance.

3.18.2 This system shall include for:-

- a) Continuous monitoring of the level of leachate in the pump sumps, leachate storage tank and in the filled waste which shall automatically activate leachate pumps to maintain the leachate head at the required level. The SCADA system shall be linked to an automatic level alarm in the administration building, and at another location outside the facility when the administration building is unmanned;
- b) Alarmed, continuous monitoring of the quality of the surface water at the inlet to the surface water retention ponds for electrical conductivity, pH and Total Organic Carbon;
- c) Alarmed, continuous gas monitoring system to be installed in the site office and any other enclosed structures at the facility; and,
- d) Operational status and alarmed, continuous monitoring of landfill gas flare and/or engine as specified by *Schedule D: Monitoring*, of this licence.

3.19 Noise Control Infrastructure

- 3.19.1 Fixed, wooden acoustic noise barriers to provide at least 10 dB(A) noise reduction shall be erected as described in the Article 16(1) response submitted to the Agency on 3<sup>rd</sup> February 2003.

3.20 Monitoring Infrastructure

3.20.1 Landfill Gas

- a) Prior to commencement of waste acceptance at the facility, the licensee shall install landfill gas migration monitoring points at the boundary locations shown on Figure 5.4 *Landfill Gas Layout Design* of the Environmental Impact Statement and on pathways to badger setts identified in the pNHA 1772 by the local Wildlife Ranger on or within the facility boundary; and,
- b) A minimum of two monitoring boreholes per hectare shall be installed within the waste mass.

3.20.2 Groundwater

- a) Prior to commencement of waste acceptance at the facility, the licensee shall install a minimum of five downgradient (three screened in sand/gravel deposits and two screened in bedrock) and two upgradient monitoring points to allow for the sampling and analyses of groundwater.
- b) All groundwater boreholes shall have their Top of Casing (TOC) elevations (mAOD Malin) marked on their respective casings. The licensee shall submit to the Agency TOC and ground level elevations for all groundwater boreholes.

3.20.3 Leachate

- a) The licensee shall install two leachate monitoring points in each phase prior to commencement of landfilling activities and a monitoring point at the leachate storage tank to allow for the sampling and analyses of leachate.

3.20.4 Surface Water

- a) A sampling station shall be installed at the inlet to each surface water retention pond.

3.20.5 A benchmark (mAOD Malin) shall be provided at the facility.

3.20.6 Replacement of Infrastructure

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

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

## **CONDITION 4 RESTORATION AND AFTERCARE**

- 4.1. The licensee shall, unless otherwise agreed by the Agency, restore the facility on a phased basis in accordance with the Landfill Restoration Manual and as described in Table 5.2 *Restoration Phases* of the Environmental Impact Statement.

- 4.2. The final profile/height of the facility shall be as shown in Figure 5.2 *Contours of Completed Site* of the Environmental Impact Statement unless otherwise agreed by the Agency.

- 4.3. Final Capping



- 4.3.1. The final capping for the non-hazardous landfill 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  $1 \times 10^{-4}$  m/s or similar that provides equivalent or better protection;
  - d) Compacted mineral layer of a minimum 0.6m thickness with a permeability of less than  $1 \times 10^{-9}$  m/s or a geosynthetic material (e.g. GCL) or similar that provides equivalent or better protection; and
  - e) Gas collection layer of natural material (minimum 0.3m) or similar that provides equivalent or better characteristics. The gas collection layer shall feed into gas extraction wells.
- 4.4. Facility restoration shall be completed within twenty-four months of the date of cessation of waste deposition at the landfill facility subject to ongoing aftercare requirements. The restoration sequence shall be in accordance with Figure 5.7 *Operational Phasing* and shall be done for each phase within twenty-four months of filling. The phasing shall satisfy the following:
- 4.4.1. Filled cells shall be capped within twelve months of the cells having been filled to the required level, unless otherwise agreed with or instructed by the Agency.
- 4.5. 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.
- 4.6. Where tree planting is to be carried out above waste-filled areas, a synthetic barrier shall be used to augment the clay cap. Combined topsoil and subsoil depths shall be a minimum of 1m.
- 4.7. Soil Storage
- 4.7.1. Soils shall be stored only as described in the section *Soil Handling and Placement* of Chapter 5 of the Environmental Impact Statement.
- 4.7.2. 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 OPERATION AND WASTE MANAGEMENT**

- 5.1 Wastes shall not be deposited in any cell or part of the landfill without the prior agreement of the Agency.
- 5.2 Wastes shall be accepted at the facility only from holders of waste collection permits issued under the Waste Management (Collection) Permit Regulations 2001. Copies of the waste collection permits must be maintained at the facility.
- 5.3 Waste Acceptance and Characterisation Procedures
- 5.3.1 Prior to commencement of waste acceptance at the facility, the licensee shall submit to the Agency and obtain its agreement to written procedures for the acceptance and handling of all wastes. These procedures shall include details of the pre-treatment of all waste to be carried out prior to acceptance at the facility and shall also include methods for the characterisation of waste in order to distinguish between inert, non-hazardous and hazardous wastes. The procedures shall have regard to the EU decision (2003/33/EC) on establishing the criteria and procedures for the acceptance of waste at landfills or any revisions pursuant to Article 16 and Annex II of Directive (1999/31/EC) on the landfill of waste. The procedure shall provide for the maintenance of a register of agreed waste

types by EWC code against waste activity, date of agreement, agreement reference code and any restrictions/special handling arrangements required.

- 5.3.2 All wastes shall be checked at the working face. Any wastes not suitable for acceptance shall be removed for recovery or disposal at an appropriate alternative facility. Such waste shall be stored in the Waste Quarantine Area only. No waste shall be stored in the Waste Quarantine Area for more than three months.

#### 5.4 Working Face

- 5.4.1 Unless the prior agreement of the Agency is given, the following shall apply at the landfill:-

- a) Only one working face shall exist at the landfill at any one time for the deposit of waste other than cover or restoration materials; and,
- b) The working face of the landfill shall be no more than 2.5 metres in height after compaction, no more than 25 metres wide by 25 metres long and have a slope no greater than 1 in 3.

- 5.4.2 All waste deposited at the working face shall be compacted, using a steel wheeled compactor, and covered as soon as is practicable and at any rate prior to the end of the working day.

- 5.4.3 The working face, or faces, shall each day at the end of the day, be covered with suitable material.

#### 5.5 Daily and Intermediate Cover

- a) 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.

#### 5.6 Landscaping

- 5.6.1 Landscaping of the facility shall be carried out as described in Chapter 5 of the Environmental Impact Statement subject to a minimum planting strip of four metres at the northeastern boundary with all trees planted at that boundary being stands at least one and a half metres tall. The additional buffer zone required by Condition 3 shall be landscaped with similar plantings.

- 5.6.2 The existing hedgerow and tree network which forms the boundary of the facility shall be retained by the licensee as indicated in Figure 5.10 *Landfill Restoration Proposal* of the Environmental Impact Statement.

#### 5.7 Operational Controls

- 5.7.1 The landfill shall be filled in accordance with the six phase sequence outlined in *Figure 5.7 Operational Phasing* of the Environmental Impact Statement subject to a minimum distance of 100 metres being maintained between the non-hazardous landfill footprint and any dwelling house. Waste deposition within the 100m buffer, between the quarry face and the non-hazardous landfill liner, will be restricted to inert waste.

- 5.7.2 Prior to the commencement of the landfill, a procedure for the operation of the facility in adverse wind conditions shall be established.

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

- 5.7.4 Wastes once deposited and covered shall not be excavated, disturbed or otherwise picked over unless with the prior agreement of the Agency.

- 5.7.5 Completed areas of the landfill shall be profiled so that no depressions exist in which water may accumulate. Any depressions arising after profiling shall be rectified by the emplacement of suitable capping or restoration materials.

- 5.7.6 Scavenging shall not be permitted at the facility.
- 5.7.7 Gates shall be locked shut when the facility is unsupervised.
- 5.7.8 The licensee shall provide and use adequate lighting during the operation of the facility in hours of darkness.
- 5.7.9 Fuels shall be stored only at appropriately banded locations on the facility.
- 5.7.10 All tanks and drums shall be labelled to clearly indicate their contents.
- 5.7.11 No smoking shall be allowed on the facility (other than in the Office and Canteen Facilities as shown on Figure 5.6 *Site Facilities* of the Environmental Impact Statement).
- 5.8 Off-site Disposal and Recovery
  - 5.8.1 Waste sent off-site for recovery or disposal shall be conveyed by a waste contractor agreed by the Agency only.
  - 5.8.2 All waste transferred from the facility shall be transferred to an appropriate facility agreed by the Agency only.
  - 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 Leachate Management
  - 5.9.1 Leachate levels in the waste shall not exceed a level of 1.0m over the top of the liner at the base of the landfill.
  - 5.9.2 The frequency of leachate removal from the leachate storage tank shall be such that a minimum freeboard of 0.75m shall be maintained in the leachate storage tank at all times.
  - 5.9.3 Leachate stored in the leachate storage tank shall be disposed of by tankering off-site in fully enclosed road tankers unless otherwise agreed by the Agency.
  - 5.9.4 Recirculation of leachate or other contaminated water shall not be undertaken without the prior agreement of the Agency.
  - 5.9.5 Prior to the acceptance of waste at the facility, the licensee shall submit to the Agency a report for its agreement on the handling and treatment of leachate arising at the facility. This shall include:
    - a) the provision of infrastructure for the on-site treatment of leachate at the facility;
    - b) agreement from the off-site Wastewater Treatment Plant(s) to which leachate and/or contaminated water will be tankered to for treatment;
    - c) the capacity of the off-site WWTP(s) and its ability to treat leachate/contaminated water to appropriate standards;
    - d) contingency arrangements in the event of process failure in the nominated off-site WWTP(s); and
    - e) a Leachate Handling Procedure for the handling of leachate on the facility and during removal from the tank and subsequent transport/discharge to the Waste Water Treatment Plant.
- 5.10 Maintenance
  - 5.10.1 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.
  - 5.10.2 All liquid storage structures on the facility shall be inspected and certified fit for purpose every three years by an independent and appropriately qualified chartered engineer.

- 5.10.3 The licensee shall maintain and clearly label and name all sampling and monitoring locations.
- 5.10.4 The wheel-wash shall be inspected on a daily basis and drained as required. Silt, stones and other accumulated material shall be removed as required from the wheel-wash and disposed of at the working face.

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

## **CONDITION 6 EMISSIONS**

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

#### 6.4. Groundwater

- 6.4.1. There shall be no direct emissions to groundwater.
- 6.4.2. The trigger level for groundwater measured at the monitoring boreholes specified in Table D.1.1 are as follows:
- TOC: >40 mg/l      Chloride: > 30mg/l      Manganese: >10 µg/l      Potassium: >5mg/l  
pH: <6 or > 9      Sulphate: > 25 mg/l      Ammoniacal Nitrogen: >0.5mg/l  
Chloride: > 30mg/l      Electrical Conductivity: >800 µS/cm
- The above groundwater trigger levels shall be reviewed by the licensee on an annual basis and submitted to the Agency for its agreement as part of the AER.
- 6.4.3. No raw leachate, treated leachate or contaminated surface water shall be discharged to the ground from the surface water collection system.
- 6.4.4. Within three months of the date of grant of this licence, the applicant shall submit to the Agency for its agreement proposals for criteria/trigger levels which will determine when the inlet to the surface water retention ponds shall be closed. Trigger levels will be based on continuous conductivity monitoring.

#### 6.5. Dust

- 6.5.1. The trigger level for PM<sub>10</sub> measured at any location on or adjacent to the boundary of the facility is:-
- a) PM<sub>10</sub> greater than 50µg/m<sup>3</sup> for a daily sample.

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

## **CONDITION 7    NUISANCE CONTROL**

- 7.1 The licensee shall ensure that vermin, birds, flies, mud, dust, litter, noise 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 Traffic awaiting access to the landfill shall queue inside the facility boundary along the site access road only.
- 7.4 The licensee shall ensure that all vehicles delivering waste to and removing waste and materials from the facility are appropriately covered.
- 7.5 Prior to exiting the facility, all construction and waste vehicles shall use the wheelwash.
- 7.6 Litter Control
- 7.6.1 The measures and infrastructure as described in Chapter 5, *Nuisance Control, Litter* of the Environmental Impact Statement shall be applied to control litter at the facility.
- 7.6.2 Notwithstanding Condition 7.6.1 prior to the disposal of any waste in any cell effective litter fencing shall be installed and maintained around the perimeter of the active tipping area.

7.6.3 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.

7.6.4 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.

## 7.7 Dust Control

7.7.1 In dry weather, site roads and any other areas used by vehicles shall be sprayed with water as and when required to minimise airborne dust nuisance.

## 7.8 Odour Control

7.8.1 Prior to commencement of waste activities, the licensee shall submit to the Agency for its agreement, an odour management plan for the facility. The plan shall include:

- a) measures to control potential sources of odour nuisance;
- b) details of odour abatement equipment that is necessary to control odours from waste activities to be carried on; and,
- c) arrangements for monitoring odours and odour abatement equipment.

*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 upon the written instruction of the Agency only 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 All landfill gas monitoring equipment, other than permanent monitoring systems within buildings, shall be certified as being intrinsically safe.

## 8.6 Groundwater Monitoring

8.6.1 Subject to the agreement of the well owners, all private wells within 250m of the facility shall be included in the monitoring programme set out in *Schedule D: Monitoring*, of this licence.

## 8.7 Meteorological Monitoring

8.7.1 Prior to the commencement of waste activities the licensee shall provide and maintain a meteorological station at the facility capable of monitoring the parameters listed in *Schedule D.5: Meteorological Monitoring*, of this licence.

#### 8.8 Topographical Survey

8.8.1 A topographical survey shall be carried out prior to the commencement of waste activities at the facility. The survey shall include a measurement of the remaining available void space. It shall be repeated annually thereafter and submitted as part of the AER. The survey shall be in accordance with any written instructions issued by the Agency.

#### 8.9 Ecological Monitoring

8.9.1 Within three months of the date of grant of this licence, the licensee shall submit to the Agency for agreement a proposal for ecological monitoring on a biannual basis. The scope of the monitoring shall as a minimum consist of monitoring of groundwater levels, flora and fauna surveys at the perimeter of the landfill site and adjacent areas identified following consultation with The Heritage and Planning Division of the Department of the Environment, Heritage and Local Government. The first survey shall be undertaken during the first year after the issue of licence.

8.9.2 Prior to the commencement of construction of the facility, the licensee shall report on the newt and sand martin populations of the areas which are likely to be affected by the construction of the facility. The licensee shall consult with The Heritage and Planning Division of the Department of the Environment, Heritage and Local Government, prior to undertaking the surveys and any recommendations arising from the assessments shall be implemented as agreed with the Agency.

#### 8.10 Archaeological Assessment

8.10.1 Prior to the development of any undisturbed area, the advice of The Heritage and Planning Division of the Department of the Environment, Heritage and Local Government shall be sought. On completion of such development a report of the results of any archaeological monitoring shall be submitted to the Development Applications Section, Department of the Environment, Heritage & Local Government (formerly known as Dúchas) and to the Agency.

#### 8.11 Stability Assessment

8.11.1 Prior to the commencement of waste disposal activities at the facility, and annually thereafter, the licensee shall carry out a stability assessment of the side slopes of the facility.

#### 8.12 Nuisance Monitoring

8.12.1 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.

#### 8.13 Data Management

8.13.1 The licensee shall, prior to the date of commencement of waste activities, develop and establish a Data Management System for collation, archiving, assessing and graphically presenting the environmental monitoring data generated as a result of this licence. Baseline data shall be incorporated in this system.

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

## CONDITION 9 CONTINGENCY ARRANGEMENTS

- 9.1. In the event of an incident the licensee shall immediately:-
- a) Identify the date, time and place of the incident;
  - b) Carry out an immediate investigation to identify the nature, source and cause of the incident and any emission arising therefrom;
  - c) Isolate the source of any such emission;
  - d) Evaluate the environmental pollution, if any, caused by the incident;
  - e) Identify and execute measures to minimise the emissions/malfunction and the effects thereof; and,
  - f) Provide a proposal to the Agency for its agreement within one month of the incident occurring to:-
    - a) Identify and put in place measures to avoid reoccurrence of the incident; and,
    - b) Identify and put in place any other appropriate remedial action.
- 9.2. The licensee shall, prior to commencement of any waste activities, 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; and,
- d) All written procedures produced by the licensee which relate to the licensed activities.

10.2 The licensee shall maintain a written record for each load of waste arriving at the facility. The licensee shall record the following:-

- a) The date and time;
- b) The name of the carrier (including the waste collection permit 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 facilities to which they were removed including the waste licence or waste permit register number of those facilities as appropriate.

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 month and each year. These records shall include the relevant EWC Codes;
- b) All training undertaken by facility staff;
- c) Results from all integrity tests of bunds and other structures and any maintenance or remedial work arising from them;
- d) Details of all nuisance inspections; 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 facility. Each such record shall give details of the following:-

- a) Date and time of the complaint;
- b) The name of the complainant;
- c) Details of the nature of the complaint;
- d) Actions taken on foot of the complaint and the results of such actions; and
- e) The response made to each complainant.

- 10.5 A written record shall be kept of each consignment of leachate 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; and,
  - e) Any incidents or spillages of leachate during its removal or transportation.
- 10.6 A written record shall be kept at the facility of any programme for the control and eradication of vermin and fly infestations at the facility. These records shall include as a minimum the following:-
- a) The date and time during which spraying of insecticide is carried out;
  - b) Contractor details;
  - c) Contractor logs and site inspection reports;
  - d) Details of the rodenticide(s) and insecticide(s) used;
  - e) Operator training details;
  - f) Details of any infestations;
  - g) Mode, frequency, location and quantity of application; and,
  - h) Measures to contain sprays within the facility boundary.

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

## **CONDITION 11 REPORTS AND NOTIFICATIONS**

- 11.1 Unless otherwise agreed by the Agency, all reports and notifications submitted to the Agency shall:-
- a) Be sent to the Environmental Protection Agency, Head Office, PO Box 3000, Johnstown Castle Estate, Co Wexford;
  - b) Comprise one original and two copies unless additional copies are required;
  - c) Be formatted in accordance with any written instruction or guidance issued by the Agency;
  - d) Include whatever information as is specified in writing by the Agency;
  - e) Be identified by a unique code, indicate any modification or amendment, and be correctly dated to reflect any such modification or amendment;
  - f) Be submitted in accordance to the relevant reporting frequencies specified by this licence, such as in *Schedule E: Recording and Reporting to the Agency*, of this licence;
  - g) Be accompanied by a written interpretation setting out their significance in the case of all monitoring data; and
  - h) Be transferred electronically to the Agency's computer system if required by the Agency.
- 11.2 In the event of an incident occurring on the facility, the licensee shall:-
- a) Notify the Agency as soon as practicable and in any case not later than 1000 hrs the following working day after the occurrence of any incident;

- b) Submit a written record of the incident, including all aspects described in Condition 9.1(a-f), to the Agency as soon as practicable and in any case within five working days after the occurrence of any incident;
- c) In the event of any incident which relates to groundwater quality, notify The Heritage and Planning Division of the Department of the Environment, Heritage and Local Government as soon as practicable and in any case not later than 1000 hrs on the following working day after such an incident;
- d) In the event of any incident which relates to water quality in the Usk stream or Thady's Hole, notify the Eastern Regional Fisheries Board and The Heritage and Planning Division of the Department of the Environment, Heritage and Local Government as soon as practicable and in any case not later than 1000 hrs on the following working day after such an incident; and,
- e) 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

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

- a) Proposals for the contribution of the facility to the achievement of targets for the reduction of biodegradable waste going to landfills as specified in the Landfill Directive;
- b) The separation of recyclable materials from the waste;
- c) The recovery of non-hazardous inorganic waste;
- d) The recovery of commercial waste, including cardboard; and,
- e) Inert waste to be used for development/cover/restoration material at the facility;

### 11.4 Reports relating to Facility Operations

11.4.1. The licensee shall submit data to the Agency as required for national reports such as the European Pollution Emission Register (EPER) and the National Waste Database. Such data shall be in accordance with any relevant guidance issued by the Agency.

### 11.5 Vermin and Flies

11.5.1 Prior to the commencement of waste activities, the licensee shall submit to the Agency for its agreement a proposal for the control and eradication of vermin and fly infestations at the facility. This proposal should include as a minimum, operator training, action trigger levels (including activation if so instructed by the Agency), 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.

### 11.7 Annual Environmental Report

11.7.1 For each full calendar year from the date of commencement of waste activities, the licensee shall submit to the Agency, by 31<sup>st</sup> March of the following year an AER which shall be to the satisfaction of the Agency. In addition, the first AER report shall,

separately from the calendar year report, include a report covering the period from the date of grant of the licence to the 31<sup>st</sup> December of the same year.

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

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

## **CONDITION 12 CHARGES AND FINANCIAL PROVISIONS**

### 12.1 Agency Charges

- 12.1.1 The licensee shall pay to the Agency an annual contribution of €37,936 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 2005 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 2004, the licensee shall pay a pro rata amount from the date of this licence to 31<sup>st</sup> 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 Prior to the acceptance of waste, the licensee shall arrange for a comprehensive and fully costed Environmental Liabilities Risk Assessment for the facility to be carried out. The risk assessment shall have particular regard to any accidents, emergencies, or other incidents, which might occur at the facility and their effect on the environment. The risk assessment shall include the cost of making such Financial Provision as is required for the purposes of Section 53(1) of the Waste Management Act 1996. The financial provision shall include the costs entered into or incurred in the carrying on of the activities to which this licence relates or will relate including the closure, restoration, remediation and aftercare of the facility.
- 12.2.2 The licensee shall prior to the acceptance of waste establish and maintain a fund, or provide a written guarantee, for the costs determined under Condition 12.2. The type of fund established and means of its release/recovery shall be agreed by the Agency prior to its establishment.
- 12.2.3 The amount of financial provision held under Condition 12.2.2. shall be reviewed and revised as necessary, but at least annually. Any proposal for such a revision shall be submitted to the Agency for its agreement.
- 12.2.4 The licensee shall within two weeks of establishment, purchase, renewal or revision of the financial provision required under Condition 12.2.2, forward to the Agency written proof of such indemnity.
- 12.2.5 Unless otherwise agreed any revision to the fund shall be computed using the following formula:-  
Cost = (ECOST x WPI) + 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.

### 12.3 Cost of landfill of waste

- 12.3.1 The licensee shall provide a statement in writing to the Agency on an annual basis as part of the AER in respect of the determination of charges for the disposal of waste. The Statement shall be in accordance with the requirements of S.I. No. 337 of 2002 European Communities (Amendment of Waste Management (Licensing) Regulations, 2000) Regulation, 2002.

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

# SCHEDULE A : Waste Acceptance

## A.1 Waste Acceptance

*Table A.1 Waste Categories and Quantities*

Waste Type	Maximum Tonnes Per Annum <sup>Note 1</sup>
Residual Household/Municipal	20,000
Commercial	100,000
Construction and Demolition	20,000
Industrial Non-Hazardous Sludges (solids content >25%)	20,000
Industrial Non-Hazardous Solids	40,000
<b>TOTAL</b>	<b>200,000</b>

**Note 1:** The tonnages of residual household waste, commercial waste, construction/demolition waste and industrial waste may be altered with the prior agreement of the Agency provided that the total amount of wastes accepted for disposal at the facility does not exceed the combined total of 180,000 tonnes per annum.

## A.2 Acceptable Waste

Only the waste types listed in Table B 9.b of the further information submitted to the Agency on 03/02/03 (unless otherwise agreed by the Agency) are acceptable for disposal or recovery respectively at the facility subject to the following restrictions or unless otherwise agreed by the Agency:

- Construction materials containing asbestos (EWC code 170605\*) may not be accepted at the facility.
- Non-hazardous gypsum based materials (EWC code 170802) may not be accepted at the landfill.
- Separately collected fractions of municipal waste (EWC codes beginning 2001) may only be disposed of at the landfill with the prior agreement of the Agency.

# SCHEDULE B : Specified Engineering Works

## Specified Engineering Works

Development of the facility including preparatory works and lining.

Final capping.

Installation of Landfill Gas Management Infrastructure.

Installation of Leachate Management Infrastructure.

Installation of Groundwater Control Infrastructure.

Installation of Surface Water Management Infrastructure.

Installation of Acoustic Barrier.

Installation of Monitoring Infrastructure.

Any other works notified in writing by the Agency.

## SCHEDULE C : Emission Limits

### C.1 Noise Emissions:

(Measured at the noise sensitive locations indicated in *Table D.1*).

Day Db(A) L <sub>Aeq</sub> (30 minutes)	Night dB(A) L <sub>Aeq</sub> (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*).

Level <sup>Note 1</sup>
350 mg/m <sup>2</sup> /day

**Note 1:** 30 day composite.

### C.4 Emission Limits Values for Landfill Gas Plant:

Emission Point Reference numbers: To be agreed with the Agency in advance.

Volume to be emitted: 1800m<sup>3</sup>/hr (unless otherwise agreed by the Agency).

Minimum discharge height: 5m

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

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

# SCHEDULE D : Monitoring

## D.1 Monitoring Locations

Monitoring locations shall be those as set out in Table D.1.1.

Table D.1.1 Monitoring Locations

Landfill Gas within Waste and Boundary Locations	Landfill Gas Flare or Utilisation Plant	Dust and Odour	Noise Sensitive Receptors	Surface Water	Ground Water	Leachate
Stations		Stations	Stations	Stations	Stations	Stations
At least 2 boreholes per hectare within the waste mass	Flares (Note 1)	Dust Deposition: 4 boundary locations (Note 1)	NSR2, NSR3, NSR4, NSR5, NSR6 (Note 2)	SW3 Downstream	MW3	Leachate Storage Tank (Note 3)
				SW4 Upstream		
Boundary locations (Note 4)	Utilisation Plant (Note 1)	Odour: 3 fixed locations (Note 1) and 2 locations to be chosen on the day (upwind/ downwind)		Thady's Hole (Note 3)	Additional boreholes required by Condition 3	At leachate collection points (Note 5) (Note 6)
				Inlet to water retention ponds (SW1, SW2)		
Site Office		PM10's: 4 boundary locations (Note 1)		Biological monitoring: SW3		

**Note 1:** Monitoring locations to be agreed with the Agency.

**Note 2:** Noise Sensitive Receptors as shown on Figure 9.1 *Noise Sensitive Receptors* of the Environmental Impact Statement.

**Note 3:** Subject to owner's agreement.

**Note 4:** Landfill Gas boundary monitoring stations as shown on Figure 5.4 *Landfill Gas Layout Design* of the Environmental Impact Statement and other locations as stipulated in Condition 3.20.1.

**Note 5:** Leachate monitoring locations as shown on Figure 5.3 *Base Design and Leachate Management* of the Environmental Impact Statement.

**Note 6:** The leachate storage tank and the active phase should be analysed for leachate composition. All other locations should be monitored for levels.

## D.2 Landfill Gas

### D.2.1 Landfill Gas

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

Parameter	Monitoring Frequency		Analysis Method <sup>Note1</sup> /Technique <sup>Note2</sup>
	Gas Boreholes/ Vents/Wells	Site Office	
<b>Methane (CH<sub>4</sub>) % v/v</b>	Monthly	Continuous	Infrared analyser/flame ionisation detector
<b>Carbon dioxide (CO<sub>2</sub>) % v/v</b>	Monthly	Continuous	Infrared analyser/ flame ionisation detector
<b>Oxygen(O<sub>2</sub>) % v/v</b>	Monthly	Continuous	Electrochemical cell
<b>Atmospheric Pressure</b>	Monthly	Continuous	Standard
<b>Temperature</b>	Monthly	Continuous	Standard

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

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



### D.2.2 Landfill Gas Combustion Plant/Enclosed Flare

Location: At the Landfill Gas Compound as shown on Figure 5.6 *Site Facilities* of the Environmental Impact Statement).

Table D.2.2 Landfill Gas Utilisation Plant/Enclosed Flare Parameters and Monitoring Frequency

Parameter	Flare (enclosed) Monitoring Frequency	Utilisation Plant Monitoring Frequency	Analysis Method <sup>Note1</sup> /Technique <sup>Note2</sup>
<b>Inlet</b>			
Methane (CH <sub>4</sub> ) % v/v	Continuous	Weekly	Infrared analyser/flame ionisation detector/thermal conductivity
Carbon dioxide (CO <sub>2</sub> ) % v/v	Continuous	Weekly	Infrared analyser/thermal conductivity
Oxygen (O <sub>2</sub> ) % v/v	Continuous	Weekly	Electrochemical/thermal conductivity
Total Sulphur	Annually	Annually	Ion chromatography
Total Chlorine	Annually	Annually	Ion chromatography
Total Fluorine	Annually	Annually	Ion Selective Electrode
<b>Gas Flow Rate</b>	Continuous	Continuous	To be agreed
<b>Process Parameters</b>			
Combustion Temperature	Continuous	Quarterly	Temperature Probe/datalogger
<b>Outlet</b>			
CO	Continuous	Continuous	Flue gas analyser/datalogger
Nox	Annually	Annually	Flue gas analyser
SO <sub>2</sub>	Annually	Annually	Flue gas analyser
Particulates	Not applicable	Annually	Isokinetic/Gravimetric
TA Luft Class I, II, III organics	Not applicable	Annually	Adsorption/Desorption /GC/GCMS <sup>Note 3</sup>
TOC	Annually	Not applicable	Flame ionisation
Hydrochloric acid	Annually	Annually	Impinger /Ion Chromatography
Hydrogen fluoride	Annually	Annually	Impinger /Ion Chromatography

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

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

**Note 3:** Test methods should be capable of detecting acetonitrile, dichloromethane, tetrachlorethylene and vinyl chloride as a minimum.

### D.3 Dust/Odour Monitoring

Table D.3.1 Dust Monitoring Frequency and Technique

Parameter	Monitoring Frequency	Analysis Method/Technique
<b>Dust Deposition (mg/m<sup>2</sup>/day)</b>	Quarterly <sup>Note 3</sup>	Standard Method <sup>Note 1</sup>
<b>Odour</b>	Twice a year <sup>Note 3</sup>	See <sup>Note 2</sup>
<b>PM<sub>10</sub></b>	Annually <sup>Note 4</sup>	See <sup>Note 5</sup>

**Note 1:** Standard method VDI2119 (Measurement of Dustfall, Determination of Dustfall using Bergerhoff Instrument (Standard Method) German Engineering Institute). Any modifications to eliminate interference due to algae growth in the gauge should be reported to the Agency.

**Note 2:** To be agreed with Agency.

**Note 3:** The first survey shall be undertaken prior to the deposition of waste at the facility.

**Note 4:** The first survey shall commence within three months of the commencement of flaring.

**Note 5:** As described in prEN12341 "Air Quality – field test procedure" or an alternative agreed with the Agency.

## D.4 Noise

**Table D.4.1** Noise Monitoring Frequency and Technique

Parameter	Monitoring Frequency	Analysis Method/Technique
L(A) <sub>EQ</sub> [30 minutes]	Quarterly	Standard <sup>Note 1</sup>
L(A) <sub>10</sub> [30 minutes]	Quarterly	Standard <sup>Note 1</sup>
L(A) <sub>90</sub> [30 minutes]	Quarterly	Standard <sup>Note 1</sup>
Frequency Analysis (1/3 Octave band analysis)	Quarterly	Standard <sup>Note 1</sup>

**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 <sup>Note 1</sup>	SURFACE WATER <sup>Note 2</sup>	GROUNDWATER	LEACHATE <sup>Note 3</sup>
	Monitoring Frequency	Monitoring Frequency	Monitoring Frequency
Visual Inspection/Odour <sup>Note 2</sup>	Weekly	Quarterly	Quarterly
Groundwater Level	Not Applicable	Quarterly	Not Applicable
Leachate Level	Not Applicable	Not Applicable	Continuous
Ammoniacal Nitrogen	Quarterly	Quarterly	Annually
BOD	Quarterly	Not Applicable	Annually
COD	Quarterly	Not Applicable	Annually
Chloride	Quarterly	Quarterly	Annually
Dissolved Oxygen	Quarterly	Not Applicable	Not Applicable
Electrical Conductivity	Quarterly	Quarterly	Annually
Ph	Quarterly	Quarterly	Annually
Total Suspended Solids	Quarterly	Not Applicable	Not Applicable
Temperature	Quarterly	Quarterly	Quarterly
Metals / non metals <sup>Note 3</sup>	Annually	Annually	Annually
Cyanide (Total)	Not Applicable	Annually	Annually
Manganese	Not Applicable	Quarterly	Quarterly
Potassium	Not Applicable	Quarterly	Quarterly
Sulphate	Not Applicable	Quarterly	Quarterly
Fluoride	Not Applicable	Annually	Annually
List I/II organic substances <sup>Note 4</sup>	Once off <sup>Note 5</sup>	Annually <sup>Note 5</sup>	Once off <sup>Note 5</sup>
Mercury	Annually	Annually	Annually
Sulphate	Annually	Annually	Annually
Total Alkalinity	Annually	Annually	Not applicable
Total P/orthophosphate	Annually	Annually	Annually
Total Oxidised Nitrogen	Annually	Annually	Annually
Total Organic Carbon	Not Applicable	Quarterly	Not Applicable
Residue on evaporation	Not Applicable	Annually	Not Applicable

<b>PARAMETER</b> <sup>Note 1</sup>	<b>SURFACE WATER</b> <sup>Note 2</sup>	<b>GROUNDWATER</b>	<b>LEACHATE</b> <sup>Note 3</sup>
	<b>Monitoring Frequency</b>	<b>Monitoring Frequency</b>	<b>Monitoring Frequency</b>
<b>Biological Assessment</b>	Annually <sup>Note 6</sup>	Not Applicable	Not Applicable

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

**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 Environmental Protection Agency method 524 or equivalent), semi-volatiles (USEPA method 525 or equivalent, and pesticides (USEPA method 608 or equivalent).

**Note 5:** 2 surface water locations, 3 groundwater locations and 2 leachate locations to be agreed with the Agency for these parameters.

**Note 6:** Appropriate biological methods (such as EPA Q-Rating System) to be used for the assessment of rivers and streams.

### ***D.6 Meteorological Monitoring***

Table D.6.1 Meteorological Monitoring:

Upon commencement of waste activities data to be obtained from a location on the facility.

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

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

## SCHEDULE E : Recording and Reporting to the Agency

Report	Reporting Frequency <small>Note1</small>	Report Submission Date
<b>Environmental Management System Updates</b>	Annually	One month after the end of the year reported on.
<b>Annual Environment Report (AER)</b>	Annually	By 31 <sup>st</sup> January every year.
<b>Record of incidents</b>	As they occur	Within five days of the incident.
<b>Bund, tank and container integrity assessment</b>	Every three years	Prior to commissioning and one month after end of the three year period being reported on.
<b>Specified Engineering Works reports</b>	As they arise	Prior to the works commencing.
<b>Monitoring of landfill gas</b>	Quarterly	Ten days after end of the quarter being reported on.
<b>Monitoring of Surface Water Quality</b>	Quarterly	Ten days after end of the quarter being reported on.
<b>Monitoring of Groundwater Quality</b>	Quarterly	Ten days after end of the quarter being reported on.
<b>Monitoring of Leachate</b>	Quarterly	Ten days after end of the quarter being reported on.
<b>Meteorological Monitoring</b>	Annually	One month after end of the year being reported on.
<b>Dust Monitoring</b>	Quarterly	Ten days after the period being reported on.
<b>Noise Monitoring</b>	Quarterly	Ten days after the period being reported on.
<b>Odour Monitoring</b>	Six Monthly	Ten days after the period being reported on.
<b>Ecological Monitoring</b>	Annually	Within one month of the survey.
<b>Any other monitoring</b>	As they occur	Within ten days of obtaining results.

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

# **SCHEDULE F : 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.

Resource and energy consumption summary.

Proposed development of the facility and timescale of such development.

Volume of leachate produced and volume of leachate transported 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.

An assessment of whether the utilisation of landfill gas as an energy resource is feasible.

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 training of staff.

Any other items specified by the Agency.

Sealed by the seal of the Agency on this the 8th day of June, 2004

PRESENT when the seal of the Agency  
was affixed hereto:

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**Padraic Larkin, Director/Authorised Person**