

This licence was amended on 14th January 2013 under Section 42B(1)(c) of the Waste Management Acts, 1996 to 2011. The details of Amendment A must be read in conjunction with this licence. The amendment document is entitled “Technical Amendment A”

This licence was amended on 19 December 2013 under Section S76A(11) of the Waste Management Act 1996 as amended. The details of the Amendment must be read in conjunction with this licence. The amendment document is entitled “IE Amendment”.



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Ireland

WASTE LICENCE
FINAL DECISION
NON-HAZARDOUS LANDFILL

Waste Licence

Register Number: 37-1

Licensee: Shannon Free Airport Development
Company Limited

Location of Facility: Tradaree Point Sludge Disposal Facility,
Shannon, (Clonmoney South), County Clare

INTRODUCTION

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

This licence is for the continued operation of the sludge disposal facility attached to Tradaree Point Effluent Treatment Plant (ETP), Shannon (Clonmoney South), County Clare. Only non-hazardous domestic and industrial sludges can be disposed of at the facility.

The licence requires all new sludge disposal areas to be lined. Within twelve months from the date of grant of the licence sludge disposal is restricted to lined cells only. The existing sludge disposal areas are required to be restored within two years from the date of grant of the licence. A buffer zone within which no sludge shall be landfilled is required to be provided and maintained between the southern perimeter drain and the edge of the sludge disposal areas. This buffer is required for the protection of the ecologically important habitats within and immediately adjoining the facility boundary.

Leachate generated within the sludge disposal areas is required to be directed to an agreed Waste Water Treatment Plant for treatment.

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

The licence sets out in detail the conditions under which Shannon Free Airport Development Company Limited are required to 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 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 Shannon Free Airport Development Company Limited to carry on the waste activities listed below at Tradaree Point Sludge Disposal Facility, Shannon, (Clonmoney South), County Clare subject to twelve conditions, with the reasons therefor and the associated schedules attached thereto set out in the licence.

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

Class 1.	Deposit on, in or under land (including landfill). This activity is limited to the disposal of treated dewatered non-hazardous domestic and industrial sludges in the existing active cells within the facility.
Class 4.	Surface impoundment, including placement of liquid or sludge discards into pits, ponds or lagoons. This activity is limited to the storage of leachate collected from within the sludge disposal areas at the facility in a lined leachate lagoon prior to treatment .
Class 5.	Specially engineered landfill, including placement into lined discrete cells which are capped and isolated from one another and the environment. This activity is limited to the disposal of 750 tonnes per annum of treated dewatered non-hazardous domestic sludges and 1750 tonnes per annum of industrial sludges in engineered cells within the facility boundary.
Class 6.	Biological treatment not referred to elsewhere in this Schedule which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1. To 10. of this Schedule: This activity is limited to the trial composting of non-hazardous domestic sludges subject to a limit of 1000m ³ at any one time at the facility.
Class 7.	Physico-chemical treatment not referred to elsewhere in this Schedule (including evaporation, drying and calcination) which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1-10 of this Schedule. This activity is limited to the physical/chemical treatment of non-hazardous sludges at the facility.
Class 13.	Storage prior to submission to any activity referred to in a preceding paragraph of this Schedule, other than temporary storage, pending collection, on the premises where the waste concerned is produced. This activity is limited to the temporary storage of treated dewatered sludges at the facility prior to disposal in lined cells within the facility.

INTERPRETATION

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

Adequate lighting	20 lux measured at ground level.
Agreement	Agreement in writing.
Annually	At approximately twelve monthly intervals.
Attachment	Any reference to Attachments in this licence refers to attachments submitted as part of the waste licence application.
Application	The application by the licensee for this waste licence.
Appropriate facility	A waste management facility, duly authorised under relevant law and technically suitable.
Biodegradable waste	Any waste that is capable of undergoing anaerobic or aerobic decomposition, such as food, garden waste, sewage sludge, paper and paperboard.
Condition	A condition of this licence.
Conditioning Plan	A Conditioning Plan for the facility as required by Article 14 of Council Directive 1999/31/EC on the landfill of waste including the information as specified in Article 8 of that Directive.
Containment boom	A boom which can contain spillages and prevent them from entering drains or watercourses.
Cover material	Earth, soil, sub-soil, or other similar natural materials excavated on site or imported from offsite or other cover material the use of which has been agreed with the Agency.
Daily Cover	Is the term used to describe material spread (about 150mm if soil cover is used) over deposited waste at the end of each day. Synthetic materials may also be used. Its objective is to minimise odour, the amount of litter generated and to control flies and access to the waste by birds and vermin. Where soils are used for daily cover, it is recommended that they be removed at the start of the day and subsequently reused as much as possible
Daytime	8.00 a.m. to 10.00 p.m.
Documentation	Any report, record, result, data, drawing, proposal, interpretation or other document in written or electronic form which is required by this licence.
Drawing	Any reference to a drawing or drawing number means a drawing or drawing number contained in the application, unless otherwise specified in this licence.
Emergency	Those occurrences defined in Condition 9.4.
Emission Limits	Those limits, including concentration limits and deposition levels established in <i>Schedule C: Emission Limits</i> , of this licence.
European Waste Catalogue (EWC)	A harmonised, non-exhaustive list of wastes drawn up by the European Commission and published as Commission Decision 94/3/EC and any

subsequent amendment published in the Official Journal of the European Community.

Hours of Operation	The hours during which the facility is authorised to be operational. The hours of operation of a facility are usually longer than the hours of waste acceptance to facilitate preparatory and completion works, such as the removal and laying of daily cover.
Hours of Waste Acceptance	The hours during which the facility is authorised to accept waste.
Inert waste	Waste that does not undergo any significant physical, chemical or biological transformations. Inert waste will not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm human health. The total leachability and pollutant content of the waste and the ecotoxicity of the leachate must be insignificant, and in particular not endanger the quality of surface water and/or groundwater.
Intermediate Cover	Refers to placement of material (minimum 300mm if soil is used) for a period of time prior to restoration or prior to further disposal of waste.
Landfill	Refers to the area of the facility where the waste is disposed of by placement on the ground or on other waste.
Landfill Gas	Gases generated from the landfilled waste.
LEL (Lower Explosive Limit)	The lowest percentage concentration by volume of a mixture of flammable gas with air which will propagate a flame at 25°C and atmospheric pressure.
Licence	A Waste Licence issued in accordance with the Act.
Licensee	Shannon Free Airport Development Company Limited.
List I/II Organics	Substances classified pursuant to EC Directives 76/464/EEC and 80/68/EEC.
Maintain	Keep in a fit state, including such regular inspection, servicing and repair as may be necessary to adequately perform its function.
Monthly	A minimum of 12 times per year, at approximately monthly intervals.
Night-time	10.00 p.m. to 8.00 a.m.
Quarterly	At approximately three monthly intervals.
Ecological Designations associated with the Shannon and Fergus Estuaries	<p>The proposed Candidate Special Area of Conservation (pSAC) for the Lower River Shannon Estuary (Site Code 002165).</p> <p>River Shannon and Fergus Estuary in the counties of Clare, Kerry and Limerick - Special Protection Area Paragraph 101 and Schedules 3,4,5,6 and 7 of S.I No. 210 of 1997- European Communities (Conservation of Wild Birds) (Amendment Regulations), 1997.</p> <p>Fergus Estuary and Inner Shannon North Shore proposed Natural Heritage Area (Site Code 2048).</p>
Sample(s)	Unless the context of this licence indicates to the contrary, samples shall include measurements by electronic instruments.
SCADA system	Supervisory Control and Data Acquisition system.

Sludge	The accumulation of solids resulting from chemical coagulation, flocculation and/or sedimentation after water or wastewater treatment with between 2% and 14% dry matter.
Specified Emissions	Those emissions listed in <i>Schedule C: Emission Limits</i> of this licence.
Specified Engineering Works	Those engineering works listed in <i>Schedule B: Specified Engineering Works</i> of this licence.
Temporary Storage of sludges	The storage onsite in designated areas of dewatered domestic and industrial sludges which have originated from the on-site treatment of domestic and industrial waste water for a period no longer than 6 months.
Treated Sludge	Sludge which has undergone biological, chemical or heat treatment, long-term storage or any other appropriate process so as significantly to reduce its fermentability and the health hazards resulting from its use.
Trigger Level	A parameter value specified in the licence, the achievement or exceedance of which requires certain actions to be taken by the licensee.
EPA Working Day	Refers to the following hours; 9.00 a.m. to 5.30 p.m. Monday to Friday inclusive.
Working Face	The area of the site in which waste other than cover material or material for the purposes of the construction of specified engineering works is being deposited.

PART 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. Art 12-6 Revision B entitled "Cell Layout and Levels" dated January 1999. 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. Apart from suitable inert material for use as daily/intermediate cover and in the restoration of the facility, only non-hazardous dewatered industrial and domestic sludges shall be disposed of, treated and/or recovered at the facility of at the facility.
- 1.5. No hazardous wastes or liquid wastes shall be disposed of at the facility.
- 1.6. Waste Acceptance Hours and Hours of Operation
 - 1.6.1. The landfill at the facility shall only be operated between the hours of 09:00 and 17:00 Monday to Friday inclusive. Any emergency operation at the facility outside of normal working hours or on a Sunday shall be notified to the Agency by 10:00 on the morning of the next working day. The notification shall detail the operations carried out, the reason for carrying them out and the hours during which they were carried out.
 - 1.6.2. The following shall constitute an incident for the purposes of this licence:
 - a) an emergency;
 - b) any emission which does not comply with the requirements of this licence;
 - c) any trigger level specified in this licence which is attained or exceeded; and
 - d) any indication that environmental pollution has, or may have, taken place.
- 1.7. Where the Agency considers that a non-compliance with any condition of this licence has occurred, it may serve a notice on the licensee specifying.
 - 1.7.1. That only those wastes as specified, if any, in the notice are to be accepted at the facility after the date set down in the notice.
 - 1.7.2. That the licensee shall undertake the works stipulated in the notice, and/or otherwise comply with the requirements of the notice as set down therein, within the time-scale contained in the notice.
 - 1.7.3. That the licensee shall carry out any other requirement specified in the notice.

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

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

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 the relevant modules of 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 Within three months from the date of grant of this licence, the licensee shall submit written details of the management structure of the facility to the Agency. Any proposed replacement in the management structure shall be notified in advance in writing to the Agency. Written details of the management structure shall include the following information
- a) the names of all persons who are to provide the management and supervision of the waste activities authorised by the licence, in particular the name of the facility manager and any nominated deputies;
 - b) details of the responsibilities for each individual named under a) above; and
 - c) details of the relevant education, training and experience held by each of the persons nominated under a) above.

2.3 Environmental Management System (EMS)

- 2.3.1 The licensee shall establish and maintain an EMS. Within eighteen months from the date of grant of this licence, the licensee shall submit to the Agency for its agreement a proposal for a documented Environmental Management System (EMS) for the facility. Following the agreement of the Agency, the licensee shall establish and maintain such a system. The EMS shall be updated on an annual basis with amendments being submitted to the Agency for its agreement.
- 2.3.2 The EMS shall include as a minimum the following elements:

2.3.2.1 Schedule of Environmental Objectives and Targets

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

2.3.2.2 Environmental Management Plan (EMP)

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

- (i) the items specified to be contained in an Environmental Management Plan in the Landfill Operational Practices Manual published by the Agency;
- (ii) methods by which the objectives and targets will be achieved and the identification of those responsible for achieving those objectives and targets;
- (iii) any other items required by written guidance issued by the Agency.

2.3.2.3 Corrective Action Procedures

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

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 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 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) the name and telephone number of the facility;
 - b) the normal hours of opening;
 - c) the name of the licence holder;
 - d) an emergency out of hours contact telephone number;
 - e) the licence reference number; and
 - f) where environmental information relating to the facility can be obtained.
- 3.4 Facility Security
- 3.4.1 A 2.5m high Security and stockproof fencing and gates shall be installed and maintained around the facility.
- 3.4.2 The licensee shall remedy any defect in the gates and/or fencing as follows:
- a) a temporary repair shall be made by the end of the working day; and,
 - b) a repair to the standard of the original gates and/or fencing shall be undertaken within three working days.
- 3.4.3 The licensee shall secure the facility and ensure that there are measures in place to detect and discourage illegal dumping at the facility.
- 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 Temporary Sludge Storage Areas
- 3.7.1 Sludges awaiting disposal shall be stored temporarily in enclosed skips at a location to be agreed with the Agency. Any sludge deemed unsuitable for landfilling at the facility shall be immediately separated, stored in enclosed skips and labelled "quarantine waste". Quarantine waste shall at the earliest possible time be removed from the facility to an appropriate facility. Drainage from the temporary storage of sludges and quarantine waste should be directed to the leachate collection system.
- 3.8 Recording of sludge quantities
- 3.8.1 The licensee shall ensure appropriate arrangements are in place to monitor and record the quantity of sludges disposed, treated and removed from the facility.
- 3.9 Tank and Drum Storage Areas
- 3.9.1 All tank and drum storage areas shall be rendered impervious to the materials stored therein.
- 3.9.2 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.
- 3.9.3 All drainage from bunded areas shall be diverted for collection and safe disposal.
- 3.9.4 All inlets, outlets, vent pipes, valves and gauges must be within the bunded area.
- 3.9.5 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 within six months of the date of grant of this licence. For any new bunds constructed this requirement shall apply following 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.
- 3.10 Landfill Lining
- 3.10.1 The landfill liner for all newly constructed sludge disposal areas shall comprise.
- (i) a composite liner consisting of a 1m layer of compacted soil with a hydraulic conductivity of less than or equal to $1 \times 10^{-9} \text{m/s}$, (or equivalent to be agreed with the Agency) overlain by an appropriate geocomposite layer such as bentomat and which in turn is overlain by a 2mm thick high density polyethylene (HDPE) layer;

- (ii) a geotextile protection layer placed over the HDPE layer;
- (iii) a 500mm thick drainage layer placed over the geotextile layer with a minimum hydraulic conductivity of 1×10^{-3} m/s, of pre-washed, uncrushed, granular, rounded stone (16 - 32mm grain size) incorporating leachate collection drains;
- (iv) the side walls shall be designed and constructed to achieve an equivalent protection.

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

3.11 Buffer Zone

3.11.1 A Buffer Zone of minimum 10m width, in which no sludge shall be landfilled and/or stored or in which no restoration material shall be stored, shall be provided and maintained between the southern perimeter drain (as shown on *Drawing No. Art 12-6 Rev. B* dated January 1999 entitled "Cell layout and levels" and referred to thereon as Catchment Drain) and the southern edge of all future sludge disposal areas. A drawing identifying this buffer zone shall be submitted to the Agency and shall be displayed at an appropriate location within the Facility Office.

3.11.2 This buffer zone shall be fenced off and shall be maintained for the protection of the coastal, intertidal, estuarine habitats within and immediately adjoining the facility boundary and within the Ecological Designations associated with the Shannon and Fergus Estuaries. The buffer zone shall be managed in a manner which is compatible with the nature conservation objectives associated with the adjoining estuarine habitats having regard to the advice of Duchas.

3.12 Leachate Management Infrastructure

3.12.1 Leachate management infrastructure shall be provided and maintained at the facility for the existing active sludge disposal areas as described in Section D.4 and shown in *Drawing No. Art 12-2 Rev. C* entitled Site Layout (dated June 1999) of the application.

3.12.2 Within twelve months from the date of grant of the licence and in any event prior to the commissioning of any new lined cells the licensee shall install leachate management infrastructure at the facility. The infrastructure shall provide for the abstraction/collection of leachate from the proposed new sludge disposal areas and former sludge disposal areas within the facility boundary and its treatment at the facility.

3.13 Landfill Gas Management

3.13.1 Within twelve months of the date of grant of this licence a proposal for landfill gas management at the facility shall be submitted to the Agency for agreement. The proposal shall take into account site specific requirements for the active collection and flaring of landfill gas based on results of landfill gas monitoring at the facility and the potential for landfill gas to be generated in the sludge disposal areas within the facility.

3.13.2 If required the flare shall be of an enclosed type design and shall be installed along with the necessary infrastructure within the timescale agreed with the Agency. Flare unit efficiency shall be tested once it is installed and once every three years thereafter.

3.13.3 All new 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.

3.14 Surface Water Management

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

- a) the protection of surface water quality in surface water drains, watercourses and the adjoining estuarine waters of the Shannon and Fergus Estuaries;
- b) the exclusion/control of tidal waters from entering the existing surface water network within the facility;
- c) the prevention of flooding within the facility boundary; and,
- d) the collection/diversion of run off arising from capped and restored areas.

3.14.2 The licensee shall consult with the Office of Public Works on the measures required to provide for the protection of the surface water in the vicinity of the facility and the prevention of flooding within the facility boundary.

3.15 Perimeter Embankment

3.15.1 The licensee shall maintain the existing southern perimeter embankment as shown in Drawing No. Art 12-2 Rev. C entitled Site layout dated June 1999 and any future embankments constructed within the facility.

3.15.2 The licensee shall consult with the Office of Public Works on the maintenance of any existing or proposed embankments at the facility.

3.16 External Access Road

3.16.1 The licensee shall maintain the external access road to the facility so as to allow access to the facility by maintenance plant and equipment during operation, restoration and aftercare of the facility and in the event of an emergency.

3.17 Monitoring Infrastructure

3.17.1 Landfill Gas

- (i) Within twelve months from the date of grant of this licence, the licensee shall provide and maintain a minimum of eight perimeter landfill gas monitoring locations at regular intervals around the landfill area.
- (ii) The licensee shall install a minimum of one landfill gas monitoring location in each new cell.

3.17.2 Groundwater

- (i) Within six months from the date of grant of this licence, the licensee shall install and maintain one monitoring point upgradient and two monitoring points downgradient of the facility to allow for the sampling and analysis of groundwater. Any decommissioned monitoring boreholes should be suitably sealed.

3.17.3 Leachate

- (i) Within six months from the date of grant of this licence, the licensee shall install monitoring points to allow for the sampling and analyses of leachate within the former sludge disposal areas within the facility.
- (ii) The licensee shall provide individual leachate monitoring points within all newly constructed lined sludge disposal areas. A minimum of two leachate level monitoring points shall be provided for each cell.

3.17.4 Replacement of Infrastructure

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

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

CONDITION 4 RESTORATION AND AFTERCARE

4.1. Conditioning Plan

- 4.1.1. The licensee shall submit to the Agency for its agreement, a Conditioning Plan for the facility as required by Article 14 of Council Directive 1999/31/EC on the landfill of waste. The Conditioning Plan shall include the particulars listed in Article 8 of the Directive and any corrective measures which the operator considers will be needed to comply with the requirements of this Directive with the exception of the requirements in Annex I, point 1.

4.2. Restoration and Aftercare Plan

- 4.2.1. The licensee shall restore the facility on a phased basis. Within nine months of the date of grant of this licence, the licensee shall submit to the Agency for agreement a Restoration and Aftercare Plan for the facility. The restoration plan shall, inter alia, provide for a method statement for the emplacement of the final capping/restoration layer(s), landscaping plans, seeding, tree planting, habitat protection and creation and ecological monitoring of the habitats within and adjoining the facility. The plan shall include separate drawings showing the proposed pre-settlement and post settlement final profile of the restored landfill facility and details of the landfilling to achieve these contours. The plan must comply with the requirements of the Landfill Directive (1999/31/EC) and have regard to the guidance published in the Agency's Landfill Manual: "Landfill Restoration and Aftercare".

- 4.2.2. The Restoration and Aftercare Plan required under Condition 4.2.1 shall include the following:

- (i) a proposal for perimeter planting and protection of the existing woodland planting and hedgerow network;
- (ii) capping and restoration of the existing, proposed and historical sludge disposal areas within the facility boundary in accordance with the requirements of Condition 4.4;
- (iii) a schedule detailing the various stages of restoration, including timescales;
- (iv) details (developed in consultation with Duchas) of the ongoing protection and monitoring of the intertidal and estuarine habitats and associated species within the Ecological Designations associated with the Shannon and Fergus Estuaries; and
- (v) the quantity and characteristics of inert waste material to be used in site restoration and the arrangements for storage of this material.

- 4.3. The maximum pre-settlement height of the capped landfill areas shall be a minimum 0.5m less than the existing height (at the time of the application) of the perimeter clay embankment between the sludge disposal areas and the adjoining estuary.

4.4. Final Capping

- 4.4.1. The final capping shall consist of the following:
- a) top soil (150-300mm);
 - b) subsoils, such that total thickness of top soil and subsoils is at least 1m;
 - c) drainage layer of 0.5m thickness having a minimum hydraulic conductivity of 1×10^{-4} m/s or geosynthetic equivalent;
 - d) compacted mineral layer of a minimum 0.6m thickness with a permeability of less than 1×10^{-9} m/s or a geosynthetic material (e.g. GCL) or similar that provides equivalent protection; and
 - e) gas collection layer of natural material (minimum 0.3m) or a geosynthetic layer, if considered necessary in accordance with the requirements of Condition 3.13.1 of this licence.

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. The restoration of each of the new sludge disposal areas within the facility shall be completed within two years of the cessation of disposal of sludge at the facility. The existing and former sludge disposal areas within the facility boundary shall be restored to the satisfaction of the Agency within twenty four months from the date of grant of the licence.

4.8. Soil Storage

- 4.8.1. All soils excavated for site development works or other soils brought onto the facility for use as restoration materials shall be stored in such a manner 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 Within twelve months from the date of grant of this licence, sludge shall only be disposed of into cells lined in accordance with Condition 3.10 of this licence.

5.2 Sludge disposal areas within the facility shall be restricted to the two existing *Active Cells* in the northern section of the facility and lined cells in the *Area of Proposed Cell Construction* as shown in *Drawing No. Art 12-2 Rev. C Site Layout*, dated June 1999 unless otherwise agreed in advance with the Agency. Sludges shall not be deposited in any new cell or part of the landfill without the prior agreement of the Agency.

5.3 Sludge Storage, Disposal and Characterisation Procedures

- 5.3.1 Within six months of the date of grant of this licence, the licensee shall submit to the Agency for its agreement written procedures for the characterisation, storage, handling and disposal of all sludges at the facility. These procedures shall include frequency of analysis, methods (including sludge, eluate and toxicity testing, criteria for toxicity testing and toxicity limits), for the characterisation of sludges in order to distinguish between non-hazardous and hazardous sludges.

5.4 Any sludges not suitable for disposal at the facility shall be removed for disposal at an appropriate alternative facility. Such sludge shall be stored in a clearly segregated designated

section of the Temporary Sludge Disposal Area only. No waste shall be stored in the Temporary Sludge Disposal Area for longer than six months.

5.5 Working Face

5.5.1 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 sludge other than cover or restoration materials; and
- b) All waste deposited at the working face shall be covered as soon as practicable and at any rate prior to the end of the working day.

5.6 Daily and Intermediate Cover

5.6.1 Any cover material at any location within the facility which is eroded, washed off or otherwise removed shall be replaced by the end of the working day.

5.6.2 Within six months of the date of grant of this licence, appropriate cover material shall be placed across the former and existing landfill areas so that no sludge, other than the following is exposed:

- a) inert material suitable for specified engineering and/or restoration works; and
- b) sludge on the working face during the operational hours of the facility.

5.7 Landscaping

5.7.1 The existing woodland planting and landscape planting adjoining the northern boundary of the Sludge disposal area (as shown on Drawing No. Art 12-2 Rev.C Site layout (dated June 1999)) and the hedgerow network within the boundary of the facility shall be retained and, where appropriate, enhanced by the licensee.

5.8 Operational Controls

5.8.1 Sludge once deposited and covered shall not be excavated, disturbed or otherwise picked over without the prior agreement from the Agency with the exception of works associated with the construction and installation of the leachate and landfill gas management system and environmental monitoring infrastructure.

5.8.2 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.

5.8.3 Filled cells shall be permanently capped within twelve months of the cells having been filled to the required level.

5.8.4 Scavenging shall not be permitted at the facility.

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

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

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

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

- 5.8.9 No smoking shall be allowed on the facility (other than in the Administration Building as shown on Drawing No. Art 12-2 Rev.C Site layout (dated June 1999).
- 5.9 Waste Handling
- 5.9.1 Sludges shall only be disposed of within the existing cells or the proposed new cells at the facility between the hours of 09:30 and 16:00 Monday to Friday inclusive.
- 5.9.2 Suitable inert material shall only be accepted at the facility for use as daily/intermediate cover or for use in site restoration.
- 5.10 Off-site Disposal and Recovery
- 5.10.1 Waste sent off-site for recovery or disposal shall only be conveyed by a waste contractor agreed by the Agency.
- 5.10.2 All waste transferred from the facility shall only be transferred to an appropriate facility agreed by the Agency.
- 5.10.3 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.
- 5.11 Leachate Management
- 5.11.1 Leachate treatment shall be as described in the application form unless otherwise agreed with the Agency.
- 5.11.2 Leachate levels in the proposed new lined cells shall not exceed a level of 1.0m over the top of the liner at the base of the landfill.
- 5.12 Maintenance
- 5.12.1 All treatment/abatement and emission control and monitoring equipment shall be calibrated and maintained, in accordance with the instructions issued by the manufacturer/supplier or installer. Written records of the calibrations and maintenance shall be made and kept by the licensee.
- 5.12.2 All lagoon structures on the facility shall be inspected and certified fit for purpose every three years by an independent and appropriately qualified chartered engineer.

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; and
- b) Carbon dioxide, greater than or equal to 1.5% v/v.

6.4. Emissions to Surface Water

6.4.1. No untreated leachate generated within the facility shall be discharged to the surface water, the foreshore or estuarine waters.

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 and odours do not give rise to nuisance at the facility or in the immediate area of the facility. Any method used by the licensee to control any such nuisance shall not cause environmental pollution.

7.2 The road network in the vicinity of the facility shall be kept free from any debris caused by vehicles entering or leaving the facility. Any such debris or deposited materials shall be removed without delay.

7.3 Litter Control

7.3.1 The licensee shall ensure that all vehicles delivering restoration materials to and removing waste and materials from the facility are appropriately covered.

7.4 Dust Control

7.4.1 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.

7.5 Bird Control

7.5.1. In the event that birds become a source of nuisance at the facility boundary a site specific Bird Control Programme shall be implemented. This programme shall incorporate appropriate bird scaring techniques. The licensee shall ensure that the Bird Control Programme does not impact on the use of adjoining estuarine mudflats and associated habitats within the Ecological Designations associated with the Shannon and Fergus Estuaries by the natural population of estuarine birds. The use of gas operated bird scaring devices is prohibited at the facility.

REASON: To provide for the control of nuisances.

CONDITION 8 MONITORING

8.1. The licensee shall carry out such monitoring and at such locations and frequencies as set out in *Schedule D: Monitoring* of this licence and as specified in this licence. Unless otherwise specified by this licence, all environmental monitoring shall commence no later than two months after the date of grant of this licence.

- 8.2. The licensee shall amend the frequency, locations, methods and scope of monitoring as required by this licence only upon the written instruction of the Agency and shall provide such information concerning such amendments as may be requested in writing by the Agency. Such alterations shall be carried out within any timescale nominated by the Agency.
- 8.3. Monitoring and analysis equipment shall be operated and maintained in accordance with the manufacturers' instructions (if any) so that all monitoring results accurately reflect any emission, discharge or environmental parameter.
- 8.4. The licensee shall provide safe and permanent access to all on-site sampling and monitoring points and to off-site points as required by the Agency.
- 8.5. The licensee shall maintain and clearly label and name all sampling and monitoring locations.
- 8.6. Landfill Gas
 - 8.6.1. All landfill gas monitoring equipment, other than permanent monitoring systems within buildings, shall be certified as being intrinsically safe.
- 8.7. Noise and Dust Monitoring
 - 8.7.1. The licensee shall carry out noise and dust monitoring at one additional location along the northern boundary of the facility as shown on Drawing No. Art 12-2 Rev.D entitled Tradaree Point Solid Waste landfill Site submitted to the Agency on 10 October 2001.
- 8.8. Leachate Monitoring
 - 8.8.1. Leachate levels within the filled waste shall be monitored at a minimum of two points in each lined cell (once constructed), at the existing leachate collection drain(s) and at the leachate manholes/ pumping chambers.
- 8.9. Surface Water Monitoring
 - 8.9.1. Within six months from the date of grant of this licence, the licensee shall implement a programme for monitoring of the Shannon and Fergus Estuary upchannel and downchannel of the points of discharge from the facility. The programme shall, at a minimum, fulfil the requirements of *Schedule D.6.1: Surface Water Monitoring* of this licence.
 - 8.9.2. Within three months from the date of grant of this licence, the licensee shall establish a minimum of two additional surface water quality monitoring points in the perimeter drains within the facility boundary at locations to be agreed with the Agency.
- 8.10. Topographical Survey
 - 8.10.1. A topographical survey shall be carried out within six months of the date of grant of this licence. The survey shall include a measurement of the remaining available void space. This survey shall take into account the requirement to maintain a buffer zone along the southern boundary of the facility as required by Condition 3.
- 8.11. Biological Assessment
 - 8.11.1. An ecological survey of the habitats and associated flora and fauna within the Ecological Designations associated with the Shannon and Fergus Estuaries within and in the immediate vicinity thereof, including upchannel and down channel of the facility, shall be undertaken within twelve months of the date of grant of this licence and every two years thereafter unless otherwise instructed by the Agency. The ecological survey shall include as a minimum the monitoring and an assessment of the following

- (i) habitat quality including an assessment of the usage of the intertidal areas by estuarine birds;
- (ii) estuarine/ river water quality and chemical analysis of estuarine sediments;
- (iii) intertidal and coastal flora including macro algae;
- (iv) existing woodland and grassland;
- (v) macroinvertebrate fauna (including bivalves) of sediments and shoreline (hard substrate);
- (vi) heavy metal contamination of macrinvertebrates.

The scope of the ecological survey shall be developed in consultation with Duchas and shall be agreed in advance with the Agency. The methodology used in the surveys shall be described in the ecological report submitted to the Agency.

8.12. Archaeological Assessment

- 8.12.1. Prior to the development of any undisturbed area, the advice of Dúchas the Heritage Service shall be sought. On completion of such development a report of the results of any archaeological monitoring shall be submitted to Dúchas and to the Agency.

8.13. Nuisance Monitoring

- 8.13.1. The licensee shall, at a minimum of one week intervals, inspect the facility and its immediate surrounds for nuisances caused by litter, vermin, birds, flies, mud, dust and odours.

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

CONDITION 9 CONTINGENCY ARRANGEMENTS

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

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

- 9.2. The licensee shall, within six months of the date of grant of this licence, submit a written Emergency Response Procedure (ERP) to the Agency for its agreement. The ERP shall address any emergency situations which may originate on the facility and shall include provision for minimising the effects of any emergency on the environment. This shall include a risk assessment to determine the requirements at the facility for emergency storage of leachate and 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 the slide slopes of the facility, including the southern perimeter embankment, indicates that there may be a risk of slope failure this will be treated as an emergency.

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

CONDITION 10 RECORDS

- 10.1 The licensee shall keep the following documents at the facility office.
- a) the current waste licence relating to the facility;
 - b) the current EMS for the facility;
 - c) the previous year's AER for the facility;
 - d) all written procedures produced by the licensee which relate to the licensed activities.
- 10.2 The licensee shall maintain a written record for each load of waste removed from the facility. The licensee shall record the following as relevant.
- a) the time and date of departure;
 - b) the name of the carrier/collector (including if appropriate, the waste carrier registration details);
 - c) the vehicle registration number;
 - d) the destination of the waste (facility name and waste licence/permit number as appropriate);
 - e) a description of the waste including the associated EWC codes;
 - f) the quantity of the waste, recorded in tonnes;
 - g) where wastes are rejected and/or returned to the facility, details of the date of occurrence, the types of waste and the facility to which the waste is removed; and
 - h) the name of the person checking the load.
- 10.3 Written Records

The following written records shall be maintained by the licensee:

- a) the types and quantities of waste recovered and disposed of at the facility each year. These records shall include the relevant EWC Codes;
 - b) all training undertaken by facility staff;
 - c) results from all integrity tests of bunds and other structures and any maintenance or remedial work arising from them;
 - d) details of all nuisance inspections; 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;
 - e) any incidents or spillages of leachate during its removal or transportation.
- 10.6 Subject to the requirements of Condition 7.5.1 a written record of the Bird Control Programme implemented at the facility, the daily bird control activities and the numbers of birds observed on the facility shall be kept as appropriate.

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

CONDITION 11 REPORTS AND NOTIFICATIONS

- 11.1 Unless otherwise agreed by the Agency, all reports and notifications submitted to the Agency shall:
- a) be sent to the Agency's Headquarters;
 - b) comprise one original and three copies unless additional copies are required;
 - c) be formatted in accordance with any written instruction or guidance issued by the Agency;
 - d) include whatever information as is specified in writing by the Agency;

- e) be identified by a unique code, indicate any modification or amendment, and be correctly dated to reflect any such modification or amendment;
- f) be submitted in accordance to the relevant reporting frequencies specified by this licence, such as in *Schedule E: Recording and Reporting to the Agency* of this licence;
- g) be accompanied by a written interpretation setting out their significance in the case of all monitoring data; and
- h) be transferred electronically to the Agency's computer system if required by the Agency.

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

- a) notify the Agency as soon as practicable and in any case not later than 10.00 a.m. the following working day after the occurrence of any incident;
- b) submit a written record of the incident, including all aspects described in Condition 9.1(a-e), to the Agency as soon as practicable and in any case within five working days after the occurrence of any incident;
- c) in the event of any incident which relates to discharges to surface water, notify Clare County Council and Shannon Regional Fisheries Board as soon as practicable and in any case not later than 10:00 a.m. on the following working day after such an incident; and
- d) should any further actions be taken as a result of an incident occurring, the licensee shall forward a written report of those actions to the Agency as soon as practicable and no later than ten days after the initiation of those actions.

11.3 Waste Recovery Report

Within nine months of the date of grant of this licence, a report examining the feasibility of composting non-hazardous sludges shall be submitted to the Agency for its agreement.

11.4 Reports relating to Facility Operations

11.4.1. Leachate Handling Procedures

11.4.1.1 Within three months of the date of grant of this licence the licensee shall submit to the Agency for its agreement procedures for the handling of leachate at the facility and subsequent discharge to a Waste Water Treatment Plant as agreed in advance with the Agency.

11.4.2. Characterisation of Sludges

11.4.2.1 Within three months of the date of grant of this licence the licensee shall submit to the Agency for its agreement a report on the characterisation and EWC classification of the domestic sludge and industrial sludges to be accepted for disposal at the facility. The scope and reporting requirements of the characterisation and classification of the sludges shall be agreed in advance with the Agency.

11.4.2.2 In the event that any of the sludges accepted for disposal are assessed to be classified as hazardous in accordance with the EWC, a proposal for the measures and infrastructure to be put in place at the facility for the temporary storage of such sludges prior to removal offsite to an appropriate facility shall be included in the Report required under Condition 11.4.2.1. Details of the proposed arrangements for the treatment and/or disposal of these sludges shall be outlined.

11.5 Monitoring Locations

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

- 11.6 The licensee shall submit to the Agency for its agreement, within thirteen months from the date of grant of this licence, and within one month of the end of each year thereafter, an Annual Environmental Report (AER).
- 11.7 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 €1,791 or such sum as the Agency from time to time determines, towards the cost of monitoring the activity or otherwise in performing any functions in relation to the activity, as the Agency considers necessary for the performance of its functions under the Waste Management Act, 1996. The licensee shall in 2004 and subsequent years, not later than January 31 of each year, pay to the Agency this amount updated in accordance with changes in the Public Sector Average Earnings Index from the date of the licence to the renewal date. The updated amount shall be notified to the licensee by the Agency. For 2003, the licensee shall pay a pro rata amount from the date of this licence to 31st December. This amount shall be paid to the Agency within one month of the date of grant of this licence.
- 12.1.2 In the event that the frequency or extent of monitoring or other functions carried out by the Agency needs to be increased the licensee shall contribute such sums as determined by the Agency to defraying its costs.

12.2 Financial Provision for Closure, Restoration and Aftercare

- 12.2.1 Unless otherwise instructed by the Agency, the licensee shall arrange for the completion of a comprehensive and fully costed Environmental Liabilities Risk Assessment for the facility which will address liabilities arising from the carrying on of the activities to which this licence relates. A report on this assessment shall be submitted to the Agency for its agreement within six months of date of grant of this licence unless otherwise instructed by the Agency.
- 12.2.2 Unless otherwise instructed by the Agency, within nine months of the date of grant of this licence, the licensee shall make a Proposal for Financial Provision to the Agency for its agreement to cover any liabilities incurred by the licensee in carrying on the activities to which this licence relates. Such provision shall be maintained by the licensee unless otherwise agreed by the Agency.
- 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 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:

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

Where:

- Cost = Revised restoration and aftercare cost
- ECOST = Existing restoration and aftercare cost
- WPI = Appropriate Wholesale Price Index [Capital Goods, Building & Construction (i.e. Materials & Wages) Index], as published by the Central Statistics Office, for the year since last closure calculation/revision.
- CiCC = Change in compliance costs as a result of change in site conditions, changes in law, regulations, regulatory authority charges, or other significant changes.

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

SCHEDULE A : Waste Acceptance

A.1 Waste Acceptance

Table A.1 Waste Categories and Quantities destined for on-site landfilling

WASTE TYPE	MAXIMUM (TONNES PER ANNUM)
Dewatered Industrial non-hazardous sludges	1,750 ^{Note 1}
Dewatered Domestic non-hazardous sludges	750 ^{Note 1}
TOTAL	2,500

Note 1: This figure can be increased but the overall total figure cannot be exceeded.

SCHEDULE B : Specified Engineering Works

Specified Engineering Works
Development of the facility including preparatory works and lining.
Final capping and Facility Restoration including landscape planting.
Installation of temporary sludge storage area(s), new sludge treatment process.
Installation of Landfill Gas, Leachate, Groundwater, Surface Water Management Infrastructure.
Any other works notified in writing by the Agency.

SCHEDULE C : Emission Limits

C.1 Noise Emissions: (Measured at the monitoring points indicated in [Table D.1.1](#)).

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

C.2 Landfill Gas Concentration Limits: (Measured in any building on or adjacent to the facility or at any point outside the proposed lined cells).

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

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

Level (mg/m ² /day) ^{Note 1}
350

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

C.4 Emission Limits Values for Landfill Flare^{Note 1}

Emission Point Reference numbers: To be agreed with the Agency

Location: Landfill Gas Flare

Volume to be emitted: 3000m³/hr (unless otherwise agreed with the Agency)

Minimum discharge height: 5m (unless otherwise agreed with the Agency)

Parameter	Flare Emission Limit Value ^{Note 1}
Nitrogen Oxides (NO _x)	150 mg/m ³
CO	50 mg/m ³
Total Organic Carbon (TOC)	10 mg/m ³
Hydrogen Chloride	50 mg/m ³ (at mass flows > 0.3 kg/h)
Hydrogen Fluoride	5 mg/m ³ (at mass flows > 0.05 kg/h)

Note 1: Dry gas referenced to 3% oxygen by volume for flares.

SCHEDULE D : Monitoring

Monitoring to be carried out as specified below.

D.1 Monitoring Locations

Monitoring locations shall be those as set out in Table D.1.1 and Drawing No. Art 12-3 Rev. A Plan showing Monitoring Locations (dated 14 December 1998) of the application.

Table D.1.1 Monitoring Locations

LANDFILL GAS	DUST	NOISE	SURFACE WATER	GROUND WATER	LEACHATE
STATIONS	STATIONS	STATIONS	STATIONS	STATIONS	STATIONS
RD1	N1	N1	SS1	BH1	Note 5
RD2	N3	N3	SS2	BH2	
RD3	SS2	SS2	SS3	RD1	
Note 1	Note 2	Note 2	Note 3	Note 4	

Note 1: Additional monitoring points in accordance with Condition 3. Frequency of emissions monitoring from the flare to be agreed.

Note 2: Additional monitoring point at a location along the northern boundary of the facility.

Note 3: Additional monitoring points as required by Condition 8.

Note 4: To continue monitoring at the specified monitoring locations until the new cells are constructed. Once constructed the locations required by Condition 3 to be used subject to the agreement of the Agency.

Note 5: Monitoring points required by Condition 3.17.

D.2 Landfill Gas

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

Parameter	Monitoring Frequency	Analysis Method ^{Note 1} / Technique ^{Note 2}
	Gas Boreholes/Vents/Wells	
Methane (CH₄) % v/v	Monthly	Infrared analyser/flame ionisation detector
Carbon dioxide (CO₂)%v/v	Monthly	Infrared analyser/ flame ionisation detector
Oxygen(O₂) %v/v	Monthly	Electrochemical cell
Atmospheric Pressure	Monthly	Standard
Temperature	Monthly	Standard

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

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

D.3 Dust

Table D.3.1 Dust Monitoring Frequency and Technique

Parameter (mg/m ² /day)	Monitoring Frequency	Analysis Method/Technique
Dust	Annually ^{Note 2}	Standard Method ^{Note 1}

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

Note 2: During the period May to September.

D.4 Noise

Table D.4.1 Noise Monitoring Frequency and Technique

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

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

D.5 Meteorological Monitoring

Table D.5.1 Meteorological Monitoring:

Data to be obtained from the Meteorological Station at Shannon Airport unless otherwise agreed with the Agency.

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

Note 1: Monitoring frequency of these parameters may reduced subject to the agreement of the Agency.

D.6 Surface Water, Groundwater and Leachate

Table D.6.1 Water and Leachate - Parameters / Frequency. ^{Note 8}

Parameter ^{Note 1}	SURFACE WATER Monitoring Frequency ^{Note 7}	GROUNDWATER Monitoring Frequency	LEACHATE Monitoring Frequency
Visual Inspection/Odour ^{Note 2}	Weekly	Quarterly	Quarterly
Groundwater Level	Not Applicable	Biannually	Not Applicable
Leachate Level (in lined cells)	Not Applicable	Not Applicable	Weekly
Total Ammonia	Biannually	Biannually	Biannually
BOD	Biannually	Not Applicable	Biannually
COD	Biannually	Not Applicable	Biannually
Chloride	Not applicable	Biannually	Biannually
Dissolved Oxygen	Biannually	Annually	Not Applicable
Electrical Conductivity	Annually	Biannually	Biannually
PH	Biannually	Biannually	Biannually
Total Suspended Solids	Biannually	Not Applicable	Not Applicable
Temperature	Biannually	Biannually	Biannually
List I/II organic substances ^{Note 3}	Note 4	Annually	Note 4
MBAS Detergents	Once-off	Annually	Annually
Metals/Non-metals ^{Note 5}	Annually	Annually	Annually
Sulphate	Annually	Annually	Annually
Total Phosphorus / orthophosphate	Annually	Annually	Annually
Total Oxidised Nitrogen	Annually	Biannually	Biannually
Total Organic Carbon	Not Applicable	Biannually	Not Applicable
Residue on evaporation	Not Applicable	Annually	Not Applicable
Phenols	Once-Off	Biannually	Not Applicable
Biological Assessment	Annually ^{Note 6}	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: 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: organohalogens, pesticides, BTEX Compounds, volatiles (US Environmental Protection Agency method 524 or equivalent), semi-volatiles (US Environmental Protection Agency method 525 or equivalent), and pesticides (US Environmental Protection Agency method 608 or equivalent).

Note 4: Once off for List I/II organic substances.

Note 5: Metals and elements to be analysed by AA/ICP should include as a minimum arsenic, boron, cadmium, calcium, chromium(total), copper, cyanide, fluoride, iron, lead, magnesium, mercury, nickel, potassium, sodium, tin and zinc.

Note 6: Appropriate biological methods to be used for the assessment of estuarine waters.

Note 7: The surface water parameters are to be monitored for the estuarine monitoring locations upchannel and downchannel of the point of discharge from the facility. The monitoring parameters for surface water drains within the facility boundary are to be agreed in advance with the Agency.

Note 8: The frequency of monitoring to be reviewed by the Agency following completion and submission of the first twelve months monitoring.

SCHEDULE E : Recording and Reporting to the Agency

Report	Reporting Frequency ^{Note1}	Report Submission Date
Environmental Management System Updates	Annually	One month after the end of the year reported on.
Annual Environment Report (AER)	Annually	Thirteen months from the date of grant of licence and one month after the end of each year thereafter.
Record of incidents	As they occur	Within five days of the incident.
Bund, tank and container integrity assessment	Every three years	Six months from the date of grant of licence and one month after end of the three year period being reported on.
Specified Engineering Works reports	As they arise	Prior to the works commencing.
Monitoring of landfill gas	Biannually	Ten days after end of the six months being reported on.
Monitoring of Surface Water Quality	Biannually	Ten days after end of the six months being reported on.
Monitoring of Groundwater Quality	Biannually	Ten days after end of the six months being reported on.
Monitoring of Leachate	Bainnually	Ten days after end of the six months being reported on.
Meteorological Monitoring	Annually	One month after end of the year being reported on.
Dust Monitoring	Annually	Ten days after the period being reported on
Noise Monitoring	Annually	One month after end of the year being reported on.
Ecological Monitoring	Annually	One month after end of the year being reported on.
Any other monitoring	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 sludge 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 treated/ 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 former sludge disposal areas and completed cells/phases.

Site survey showing existing levels of the facility at the end of the reporting period.

Estimated annual and cumulative quantities of landfill gas emitted from the facility.

Estimated annual and cumulative quantity of indirect emissions to groundwater.

Annual water balance calculation and interpretation for new cells.

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 and bund testing and inspection reports and relevant remediation measures.

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 1st day of May 2003.

**PRESENT when the seal of the Agency
was affixed hereto:**

Declan Burns, Director/Authorised Person