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Ireland

WASTE LICENCE
LANDFILL FOR NON-HAZARDOUS WASTE
REVIEW OF A WASTE LICENCE
Recommended Decision

Waste Licence	W0004-04
Register Number:	
Licensee:	South Dublin County Council
Location of Facility:	Arthurstown Landfill, Arthurstown, Kill, County Kildare.

INTRODUCTION

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

This Waste Licence relates to an existing specially engineered landfill, which is located at Arthurstown, Kill, County Kildare. The facility is operated by South Dublin County Council and accepts baled municipal waste only.

The infrastructure at the facility includes facility offices, two weighbridges, a marshalling yard for acceptance of baled waste, leachate collection and storage infrastructure, a landfill gas collection system with an enclosed flare, surface water and groundwater collection infrastructure including a retention pond.

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

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DECISION & REASONS FOR THE DECISION

Reasons for the Decision

The Environmental Protection Agency (the Agency) is satisfied, on the basis of the information available, that the requirements of Section 40(4) of the Waste Management Acts, 1996 to 2008 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 documentation received from the licensee, all submissions received and the report of its inspector.

Part I Activities Licensed

In pursuance of the powers conferred on it by the Waste Management Acts, 1996 to 2008, the Agency, under Section 46(8) of the said Acts proposes to grant this Waste Licence to South Dublin County Council, P.O. Box 4122, Town Centre, Tallaght, Dublin 24 to carry on the waste activities listed below at Arthurstown Landfill, Arthurstown, Kill, County Kildare 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 Acts 1996 to 2008*

Class 1.	<p>Deposit on, in or under land (including landfill):</p> <p>This activity is limited to the deposit of baled municipal waste at the facility.</p>
Class 4.	<p>Surface impoundment, including placement of liquid or sludge discards into pits, ponds or lagoons:</p> <p>This activity is limited to the storage of leachate in the storage and treatment tank and lagoons and the storage of surface water and groundwater at the facility.</p>
Class 5.	<p>Specially engineered landfill, including placement into lined discrete cells which are capped and isolated from one another and the environment.</p> <p>This activity is limited to the deposit of baled municipal waste into lined cells at the facility.</p>
Class 6.	<p>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:</p> <p>This activity is limited to the biological treatment of leachate arising from the waste disposed of on-site.</p>
Class 7.	<p>Physico-chemical treatment not referred to elsewhere in this Schedule (including evaporation, drying and calcination) which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1. to 10. of this Schedule:</p> <p>This activity is limited to the physico-chemical treatment of leachate arising from the waste disposed of on-site.</p>

INTERPRETATION

All terms in this licence should be interpreted in accordance with the definitions in the Waste Management Acts 1996 to 2008, (the Acts), unless otherwise defined in this section.

Aerosol	A suspension of solid or liquid particles in a gaseous medium.
Adequate lighting	20 lux measured at ground level.
Agreement	Agreement in writing.
Annually	At approximately twelve monthly intervals.
Attachment	Any reference to Attachments in this licence refers to attachments submitted as part of the waste licence application.
Application	The application by the licensee for this waste licence.
Appropriate facility	A waste management facility, duly authorised under relevant law and technically suitable.
BAT	Best Available Techniques as defined in Article 2(11) of Council Directive 96/61/EC concerning integrated pollution prevention and control.
Bi-annually	At approximately six monthly intervals.
Biodegradable waste	Waste that is capable of undergoing anaerobic or aerobic decomposition, such as food and garden waste, paper and cardboard etc.
Biodegradable municipal waste (BMW)	The biodegradable component of municipal waste, not including bio-stabilised residual waste. Biodegradable municipal waste is typically composed of food and garden waste, wood, paper, cardboard and textiles.
Bio-stabilised residual waste	Residual biodegradable municipal waste that has been treated to achieve an EPA-approved biodegradability stability standard (as defined in this licence) prior to landfilling or alternative use agreed.
Characterisation of waste	The sampling and analysis of waste to determine, amongst other things, its nature and composition including the proportions of biodegradable, recyclable and other materials in the waste.
Classification of waste	The classification of waste as inert, non-hazardous or hazardous for the purpose of article 4 of Council Directive (1999/31/EC) on the landfill of waste.
Coding of Waste	The allocation of a European Waste Catalogue/Hazardous Waste List code and a concise/standardised description of the waste, including information on the source of the waste, e.g. municipal, industrial, construction and demolition etc.
Condition	A condition of this licence.
Construction and Demolition Waste	All wastes which arise from construction, renovation and demolition activities.
Containment boom	A boom which can contain spillages and prevent them from entering drains or watercourses.
Daily Cover	Is the term used to describe material spread (about 150mm if soil cover is used) over deposited waste at the end of each day. Synthetic materials may also be used. Its objective is to minimise odour, the amount of litter generated and to control flies and access to the waste by birds and vermin. Where soils are used for daily cover, it is recommended that they be removed at the start of the day and subsequently reused as much as possible.
Daytime	0800 hrs to 2200 hrs.
Documentation	Any report, record, result, data, drawing, proposal, interpretation or other document in written or electronic form which is required by this licence.

Drawing	Any reference to a drawing or drawing number means a drawing or drawing number contained in the application, unless otherwise specified in this licence.
Emergency	Those occurrences defined in <i>Condition 9.4</i> .
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.
FID	Flame Ionisation Detector.
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.
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 Acts.
Licensee	South Dublin County Council.
List I/II Organics	Substances classified pursuant to EC Directives 76/464/EEC and 80/68/EEC.
Liquid Waste	Any waste in liquid form and containing less than 2% dry matter. Any waste tankered to the facility.
Maintain	Keep in a fit state, including such regular inspection, servicing and repair as may be necessary to adequately perform its function.
Mobile Plant	Self-propelled machinery used for the emplacement of wastes or for the construction of specified engineering works.
Monthly	A minimum of twelve times per year, at approximately monthly intervals.
Municipal solid waste (MSM)	Household waste as well as commercial and other waste which, because of its nature or composition, is similar to household waste. Excluding municipal sludges and effluents.
Night-time	2200 hrs to 0800 hrs.
OMP	Odour Management Plan
Quarterly	At approximately three monthly intervals.
Residual waste	The fraction of collected waste remaining after a treatment or diversion step, which generally requires further treatment or disposal.
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 biological, chemical coagulation, flocculation and/or sedimentation processes associated with water or wastewater treatment, with >2% solids.
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.
Standard Method	A National, European or internationally recognised procedure (eg, I.S. EN, ISO, CEN, BS or equivalent), as in-house documented procedure based on the above references, a procedure as detailed in the current edition of "Standard Methods for the Examination of Water and Wastewater", (prepared and published jointly by A.P.H.A., A.W.W.A & W.E.F), American Public Health Association, 1015 Fifteenth Street, N.W., Washington DC 20005, USA; or, an alternative method as may be agreed by the Agency.
Treatment/pre-treatment	In relation to waste; any manual, thermal, physical, chemical or biological processes that change the characteristics of waste in order to reduce its volume or hazardous nature or facilitate its handling, disposal or recovery.
Trigger Level	A parameter value specified in the licence, the achievement or exceedance of which requires certain actions to be taken by the licensee.
White Goods	Refrigerators, cookers, ovens and other similar appliances.
EPA Working Day	Refers to the following hours: 0900 hrs to 1730 hrs Monday to Friday inclusive.
Working Face	The area of the site in which waste other than cover material or material for the purposes of the construction of specified engineering works is being deposited.

PART II CONDITIONS

CONDITION 1 SCOPE OF THE LICENCE

- 1.1. Waste activities at the facility shall be restricted to those listed and described in Part I: Activities Licensed and authorised by this licence.
- 1.2. For the purposes of this licence, the facility is the area of land outlined in red on Drawing No. 2001-054-02-02 Rev.A – Site Plan: Showing Licensed Facility Boundary (Shown Red) & Site Notice Location of the application. Any reference in this licence to “facility” shall mean the area thus outlined in red.
- 1.3. This licence is for the purposes of waste licensing under the Waste Management Acts, 1996 to 2008 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. Waste Acceptance.
 - 1.4.1. Baled municipal waste only may be disposed of at the facility subject to the maximum quantities and other constraints listed in *Schedule A: Waste Acceptance*, of this licence.
 - 1.4.2. Whole used tyres (other than bicycle tyres and tyres with an outside diameter greater than 1400mm) shall not be disposed of at the facility. Shredded tyres shall not be disposed of at the facility.
 - 1.4.3. No hazardous wastes, liquid wastes, shall be disposed of at the facility.
 - 1.4.4. No waste which in the conditions of the landfill, is explosive, corrosive, oxidising, highly flammable or flammable as defined in EU Council Directive 91/689/EEC shall be accepted at the landfill.
 - 1.4.5. Within one month of the date of grant of this licence, the licensee shall submit to the Agency for its agreement updated written procedures for the acceptance and handling of all wastes. These procedures shall include details of the treatment of all waste to be carried out in advance of acceptance at the facility and shall also include methods for the characterisation, classification and coding of waste. The procedures shall have regard to the EU Decision (2003/33/EC) establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 and Annex II of Directive (1999/31/EC) on the landfill of waste.
 - 1.4.6. The dilution or mixture of waste solely in order to fulfil relevant waste acceptance criteria established under Condition 1.4.5 is prohibited.
- 1.5. Waste Treatment
 - 1.5.1. Only waste that has been subject to treatment shall be accepted for disposal at the landfill facility.
 - (i) Treatment shall reflect published EPA technical guidance as set out in *Municipal Solid Waste – Pre-treatment and Residuals Management*, EPA, 2009.
 - (ii) With the agreement of the Agency, this condition shall not apply to:
 - inert wastes for which treatment is not technically feasible;
 - 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 Limit on acceptance of biodegradable municipal waste

1.6.1 Unless otherwise as may be specified by the Agency, the following limits shall apply:

- (i) For the calendar years 2010, 2011 and 2012, a maximum of 40% by weight of municipal solid waste (MSW) accepted for disposal to the body of the landfill shall comprise biodegradable municipal waste (BMW),
- (ii) For the calendar years 2013, 2014 and 2015, a maximum of 24% by weight of MSW accepted for disposal to the body of the landfill shall comprise BMW, and
- (iii) For the calendar year 2016 and thereafter, a maximum of 15% by weight of MSW accepted for disposal to the body of the landfill shall comprise BMW,

unless an alternative has been agreed in writing by the Agency in accordance with Condition 1.6.2

1.6.2 Two or more licensed landfills may seek the agreement of the Agency that collectively they will arrange to comply with Condition 1.6.1. Any agreements entered into become part of this licence. In seeking agreement the following factors, as a minimum, shall be addressed in any proposal submitted to the Agency:

- BAT;
- age, intake rate and life expectancy of the facility;
- waste intake characterisation;
- potential for odour generation;
- proximity to sensitive receptors;
- capacity of landfill gas and leachate infrastructure; and
- consideration of any potential environmental impact or change to operational practices.

1.7 Determination of biodegradable municipal waste content of municipal waste

1.7.1 The licensee shall determine the biodegradable municipal waste content of MSW accepted for disposal to the body of the landfill. Waste that has been bio-stabilised in accordance with Condition 1.7.4 shall not be considered BMW.

1.7.2 Bio-stabilised residual wastes meeting the requirements of Condition 1.7.4 received at the landfill facility may be included in the determination of MSW quantities accepted at the facility for the purposes of Condition 1.6.1.

1.7.3 In determining BMW content, the licensee shall use approved calculation factors for BMW content of municipal waste streams published by the EPA. With the agreement of the EPA, alternative factors can be used if they have been determined following waste characterisation carried out in accordance with EPA-approved characterisation protocols including, where appropriate, the use of EPA-approved contractors.

1.7.4 In the case of bio-stabilised residual wastes, stabilisation means the reduction of the decomposition properties of the waste to such an extent that offensive odours are minimised and that the respiration activity after four days (AT_4) is $<10\text{mg O}_2/\text{g DM}$ until 1 January 2016 and $<7\text{mg O}_2/\text{g DM}$ thereafter.

1.7.5 Bio-stabilised residual wastes shall be monitored in accordance with Schedule D.9.

- 1.7.6 Waste that was accepted to the body of the landfill as stabilised but subsequently is found not to meet the stabilisation standard set out in Condition 1.7.4 shall be notified to the Agency and included in the calculation of BMW accepted to the body of the landfill when assessing compliance with Condition 1.6.1. In the event of failure to meet the stabilisation standard, each and every load of bio-stabilised residual waste accepted from the failed source following receipt of the failed test result shall be tested, notwithstanding the testing frequency set out in Schedule D.9, until otherwise agreed with the Agency.
- 1.7.7 The licensee is required to maintain on-site as part of their waste acceptance procedures and associated documentation, evidence to demonstrate compliance with Condition 1.6.1, which shall be available for inspection by Agency personnel.
- 1.8 Any waste deemed unsuitable for acceptance at the facility and/or in contravention of this licence shall be immediately separated and removed from the facility at the earliest possible time. Temporary storage of such wastes shall be in a designated Waste Quarantine Area. Waste shall be stored under appropriate conditions in the quarantine area to avoid putrefaction, odour generation, the attraction of vermin and any other nuisance or objectionable condition.
- 1.9 Waste Acceptance Hours and Hours of Operation
- 1.9.1 Waste may only be accepted at the facility for disposal between the hours of 8.00 a.m. and 6.30 p.m. Monday to Saturday inclusive.
- 1.9.2 The landfill at the facility may only be operated during the hours of 8.00 a.m. and 7.00 p.m. Monday to Saturday inclusive.
- 1.10 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.
- 1.10 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.
- 1.10.1 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.
- 1.10.2 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.
- 1.10.3 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.
- 1.11 Every plan, programme or proposal submitted to the Agency for its agreement pursuant to any condition of this licence shall include a proposed timescale for its implementation. The Agency may modify or alter any such plan, programme or proposal in so far as it considers such modification or alteration to be necessary and shall notify the licensee in writing of any such modification or alteration. Every such plan, programme or proposal shall be carried out within the timescale fixed by the Agency but shall not be undertaken without the agreement of the Agency. Every such plan, programme or proposal agreed by the Agency shall be covered by the conditions of this licence.

1.12 This licence is being granted in substitution for the waste licence granted to the licensee on 25th March 2005 and bearing Waste Licence Register No: W0004-03. This licence supersedes the previous Waste Licence (Register No: W0004-03).

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 by 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 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 maintain an Environmental Management System (EMS) at the facility. 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 licensee shall prepare and maintain a Schedule of Environmental Objectives and Targets. The schedule shall, as a minimum, provide for a review of all operations and processes, including an evaluation of practicable options, for energy and resource efficiency, the use of cleaner technology (including emissions prevention/reduction), and the beneficial recovery/recycling of waste in subsequent landfill engineering operations. The schedule shall include time frames for the achievement of set targets and shall address a five-year period as a minimum. The schedule shall be reviewed annually and amendments thereto notified to the Agency for agreement as part of the Annual Environmental Report (AER).

The licensee shall ensure insofar as practicable that environmental objectives and targets are met according to the stated schedule.

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 Notwithstanding the provisions of Condition 2.3.2.2, the operator shall prepare, operate and maintain a Landfill Environmental Management Plan (LEMP) covering aspects not already included in the EMP. The LEMP shall be regularly reviewed (at least annually) in light of operational experiences at the facility, the stage of development of the facility (active, closure, aftercare), evolving legislative and BAT requirements, as well as any Agency instructions that may issue, with updates notified to the EPA as part of the AER.

2.3.2.4 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.

2.3.2.5 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 implement and maintain the agreed Communications Programme to inform and involve the local community and ensure that members of the public can obtain information at the facility, at all reasonable times, concerning the environmental performance of the facility.

2.5 Resource Use and Energy Efficiency

2.5.1 The licensee shall carry out an audit of the energy efficiency of the site within twelve months of the date of grant of this licence. The audit shall:-

- (i) identify all opportunities for energy use reduction and efficiency;
- (ii) be carried out in accordance with the guidance published by the Agency - "Guidance Note on Energy Efficiency Auditing"; and
- (iii) be carried out at intervals as required by the Agency.

The recommendations of the audit will be incorporated into the Schedule of Environmental Objectives and Targets under Condition 2.3.2.1 above.

- 2.5.2 The licensee shall identify opportunities for reduction in the quantity of water used on site including recycling and reuse initiatives, wherever possible. Reductions in water usage shall be incorporated into the Schedule of Environmental Objectives and Targets.
- 2.5.3 The licensee shall undertake an assessment of the efficiency of use of raw materials in all processes, having particular regard to the reduction in waste generated. The assessment should take account of best international practice for this type of activity. Where improvements are identified, these shall be incorporated into the Schedule of Environmental Objectives and Targets.

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. To provide for the efficient use of resources and energy in all site operations.*

CONDITION 3 FACILITY INFRASTRUCTURE

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

- a) The name and telephone number of the facility;
- b) The normal hours of opening;
- c) The name of the licence holder;
- d) An emergency out of hours contact telephone number;
- e) The licence reference number; and
- f) Where environmental information relating to the facility can be obtained.

3.4 Facility Security

3.4.1 Security and stockproof fencing and gates shall be installed and maintained as described in correspondence dated 06/04/99. The security fence and gates shall be at the locations shown on Drawing No. AWL99/02 – Fencing Details. 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.

3.5.2 The hardstanding areas detailed in Drawing 96-09933.12.Rev.2 – “1:1000 Layout Plan showing hardstanding surfaces” shall drain via an oil separator to the stormwater collection system unless otherwise agreed in advance with the Agency.

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 Weighbridge

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

3.8 Vehicle Cleaning

3.8.1 The licensee shall maintain the existing wheelwash unit and vehicle cleaning facilities unless otherwise agreed by or instructed by the Agency.

3.9 Waste Water Treatment Plant

3.9.1 The licensee shall provide and maintain an on-site treatment system at the facility. This system shall discharge to the on-site leachate management system unless otherwise agreed in advance with the Agency.

3.10 Tank and Drum Storage Areas

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

3.10.2 All tank and drum storage areas shall, as a minimum, be 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.

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

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

3.10.5 Bunds shall be designed, having regard to Agency guidelines '*Storage and Transfer of Materials for Scheduled Activities*' (2004). The integrity and water tightness of all the bunds and their resistance to penetration by water or other materials stored therein shall be confirmed by the licensee and shall be reported to the Agency following its installation and prior to its use as a storage area.

This confirmation shall be repeated at least once every three years thereafter and reported to the Agency on each occasion.

3.11 Landfill Lining:

3.11.1 The landfill liner shall comply with the requirements of the Landfill Directive (1999/31/EC), and unless otherwise agreed by the Agency shall comprise:-

- a) A composite liner consisting of a 1m layer of compacted soil with a hydraulic conductivity of less than or equal to 1×10^{-9} m/s, (or equivalent to be agreed by the Agency) overlain by a high density polyethylene (HDPE) layer with a minimum thickness of at least 2mm;
- b) A geotextile protection layer placed over the HDPE layer;
- c) A 500mm thick drainage layer placed over the geotextile layer with a minimum hydraulic conductivity of 1×10^{-3} m/s, of pre-washed, uncrushed, granular, rounded stone (16 - 32mm grain size) incorporating leachate collection drains; and
- d) The side walls shall be designed and constructed to achieve an equivalent protection.

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

3.12 Leachate Management Infrastructure

3.12.1 Unless otherwise agreed by the Agency, the licensee shall provide and maintain a leachate storage lagoon(s) at the facility to facilitate the storage of leachate abstracted/collected from the waste. Prior to the use of any new cells for the deposition of waste the licensee shall ensure that appropriate leachate management and sufficient leachate storage capacity is provided to cater for leachate generation from those cells. Unless otherwise agreed by the Agency, the lining for any new leachate storage lagoon shall be a composite liner in accordance with Condition 3.11. Any alternatives proposed for consideration must have an equivalent level of environmental protection.

3.12.2 Unless otherwise agreed by the Agency the licensee shall maintain the existing leachate management infrastructure as identified in Attachment D4 – Leachate Management [Article 14(2)(b)(ii) response dated 31/10/01].

3.12.3 All leachate management structures on-site shall be inspected and certified fit for purpose on an annual basis by an independent and appropriately qualified chartered engineer. The tanker(s) used for the transport of leachate offsite shall also be inspected once every two years by independent appropriately qualified personnel.

3.13 Landfill Gas Management.

- 3.13.1 Landfill Gas Management infrastructure shall be installed and maintained to facilitate the collection of landfill gas generated at the facility and its subsequent flaring or utilisation in accordance with the emission limits in *Schedule C.5: Emission Limits Values for Landfill Gas Plant*, of this licence. This shall include, *inter alia*;
- (i) The licensee shall install and maintain landfill gas utilisation plant as referred to in correspondence dated 30/10/02, unless otherwise agreed by the Agency;
 - (ii) The licensee shall ensure that sufficient flaring capacity is provided for and maintained at the facility to deal with the landfill gas collected prior to the operation of the generators for the utilisation of landfill gas as referred to above. The licensee shall provide and maintain a 2,500m³/hour capacity enclosed flare as referred to in correspondence of 19th December 2002; and
 - (iii) Following installation and commencement of operation of the generators referred to above the licensee shall maintain the 2,500 m³/hour flare referred to in (ii) above as a backup unit in the event of breakdown of any of the generators.
- 3.13.2 Flare unit efficiency shall be tested once every three years.
- 3.13.3 All buildings constructed on the facility shall have regard to the guidance given in the Department of Environment 1994 publication "Protection of New Buildings and Occupants from Landfill Gas" and any subsequent revisions.
- 3.13.4 All vents not connected to the landfill gas collection system and in waste filled cells, other than the active cell(s), shall be fitted with an effective activated carbon filter unless otherwise agreed by or instructed by the Agency.
- 3.13.5 The licensee shall connect the vents in the area known as "Gavin's Dump" to the active landfill gas collection system if monitoring at these vents indicates significant quantities of landfill gas.

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 prevention of contaminated water and leachate discharges into surface water drains and courses; and
 - b) the collection/diversion of run off arising from capped and restored areas.

3.15 Groundwater Management.

- 3.15.1 Effective groundwater management infrastructure shall be provided and maintained at the facility during construction, operation, restoration and aftercare of the facility. As a minimum, the infrastructure shall be capable of the following:
- a) the protection of the groundwater resources from pollution by the waste activities; and
 - b) the protection of other infrastructure, such as the liner, from any adverse effects caused by the groundwater.
- 3.15.2 The licensee shall ensure that the groundwater levels are maintained below the base level of the clay layer of the lining system until such time as agreed in advance with the Agency. This shall be carried out through the installation and maintenance of the groundwater control system as referred to in Attachment H.6 and in correspondence of 28th March 2002, unless otherwise agreed by the Agency.

3.16 The licensee shall maintain the infrastructure and provisions relating to the site known as "Gavin's Dump" as detailed in the Article 16 response dated 2nd August 2002, unless otherwise agreed by the Agency.

3.17 SCADA system

3.17.1 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 Monitoring Infrastructure.

3.18.1 Replacement of Infrastructure

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

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

CONDITION 4 RESTORATION AND AFTERCARE

4.1. The licensee shall restore the facility on a phased basis. The Restoration and Aftercare Plans for the facility shall include the plan submitted as part of Attachment G.1 – Restoration Scheme unless where otherwise instructed or agreed by the Agency.

4.2. The final profile/height of the facility shall be as a maximum be that as shown in Drawing No. AWL99-29A – Final Levels & Capping Detail. The profile of the remediated site referred to as "Gavin's Dump" shall not be altered unless otherwise agreed by the Agency.

4.3. Final Capping

4.3.1. Unless otherwise agreed in advance with the Agency the final capping shall consist of the following:

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

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

4.5. 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.

4.6. The restoration of the landfill facility shall be carried out on a phased basis and shall commence as soon as a cell is final capped. Landfill restoration shall be completed within twenty-four months of the date of cessation of waste deposition at the landfill facility. The phasing shall satisfy the following:-

Operational cells shall be final capped within twelve months of the cells having been filled to the required level, unless otherwise agreed or instructed by the Agency.

4.7 A final validation report to include a certificate of completion for the Restoration and Aftercare plan, for all or part of the site, as necessary, shall be submitted to the Agency within three months

of execution of the plan. The licensee shall carry out such tests, investigations or submit certification, as requested by the Agency, to confirm that there is no continuing risk to the environment.

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 Only waste baled at facilities agreed in advance with the Agency may be accepted at the facility.
- 5.3 Where waste types are not permitted to be accepted at the facility, then those waste types shall not be accepted whether or not they have been baled, packaged, placed in other containers or waste materials, or pre-treated by any form of solidification or encapsulation.
- 5.4 All wastes shall be checked at the working face. Any wastes not suitable for acceptance shall be immediately removed for recovery or disposal at an appropriate alternative facility.
- 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 waste other than cover or restoration materials;
 - b) The maximum size of the working face shall be as detailed in correspondence dated 30/04/99;
 - c) The horizontal face of the waste will be covered at the end of each day with not less than 150mm free-draining sand and/or gravel;
 - d) The vertical face of the waste will be entirely covered by polythene sheeting after the end of the working day; and
 - e) Where a vertical face of waste is not to be worked on the following day, the face will be covered with not less than 150mm free-draining sand and/or gravel, or alternative agreed in advance with the Agency.
- 5.6 Daily and Intermediate Cover
- 5.6.1 Appropriate cover material shall be placed across the whole landfill so that no waste, other than the following is exposed:-
- a) Waste suitable for specified engineering works; and
 - b) Waste on the working face during the operational hours of the facility.
- 5.6.2 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.

- 5.6.3 Bio-stabilised residual waste shall only be used as landfill cover where it has been stabilised in accordance with Condition 1.7.4, complies with any requirements of the Department of Agriculture, Fisheries and Food relating to the management of animal by-products and has been agreed in advance with the Agency.

5.7 Operational Controls

- 5.7.1 The landfill shall be filled in accordance with the four-phase, fifteen-cell sequence as shown in Drawing No. AWL02-27B – Site Infrastructure unless otherwise instructed or agreed by the Agency.
- 5.7.2 The filling of cells shall be in a manner such that commencement of waste deposition into a cell shall only occur once the previous cell is temporarily capped. No more than four temporarily capped cells may exist at any time prior to reaching final profile levels.
- 5.7.3 Wastes once deposited and covered shall not be excavated, disturbed or otherwise picked over with the exception of works associated with the construction and installation of the landfill gas collection system unless with the prior agreement from the Agency.
- 5.7.4 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.
- 5.7.5 Scavenging shall not be permitted at the facility.
- 5.7.6 Gates shall be locked shut when the facility is unsupervised.
- 5.7.7 The licensee shall provide and use adequate lighting during the operation of the facility in hours of darkness.
- 5.7.8 Fuels shall only be stored at appropriately bunded locations on the facility.
- 5.7.9 All tanks and drums shall be labelled to clearly indicate their contents.
- 5.7.10 No smoking shall be allowed on the facility other than in facility offices fitted with permanent gas monitoring systems.

5.8 Off-site Disposal and Recovery

- 5.8.1 Waste sent off-site for recovery or disposal shall only be conveyed by a waste contractor agreed by the Agency.
- 5.8.2 All waste transferred from the facility shall only be transferred to an appropriate facility agreed by the Agency.
- 5.8.3 All wastes removed off-site for recovery or disposal shall be transported from the facility to the consignee in a manner which will not adversely affect the environment.

5.9 Leachate Management

- 5.9.1 Leachate stored in the leachate storage lagoon shall be removed by tankering off-site in fully enclosed road tankers, unless where being treated in the leachate treatment process as detailed in Attachment D.4, re-circulated in accordance with conditions of this licence or discharged directly to sewer, as provided for in this licence.
- 5.9.2 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.
- 5.9.3 The level of leachate in the pump sumps shall be monitored as outlined in Section 17.5 of the Environmental Management Plan 2002 dated 16th July 2002 unless otherwise agreed or instructed by the Agency.
- 5.9.4 The frequency of leachate removal/discharge from the leachate lagoon shall be such that a minimum freeboard of 0.5m shall be maintained in the leachate lagoon at all times.
- 5.9.5 Re-circulation of leachate or other contaminated water shall not be undertaken without the prior agreement of the Agency and, in any case, shall only be undertaken within cells which have been lined to the satisfaction of the Agency.

5.10 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 lagoon structures on the facility shall be inspected and certified fit for purpose every three years by an independent and appropriately qualified chartered engineer.
- 5.10.3 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 samples 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 Groundwater monitoring trigger levels in accordance with the requirements of Directive 1999/31/EC shall be agreed by the Agency.

6.5. Emissions to Surface Water

6.5.1. Discharges to the Hartwell River from the surface water drainage system constructed at the facility shall be at the location shown on Drawing No. 96-09933 01 Revision B, "1:2500 Layout Showing Final Contours, Storm Discharge Pipe and Monitoring Wells.

6.5.2. No raw leachate, treated leachate or contaminated surface water shall be discharged to Hartwell River.

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

6.6. Disposal of Leachate

6.6.1. All leachate or contaminated water tankered from the facility shall be transported to the location referred to in correspondence of 27th May 2002 and shown in Drawing No. AWL02/0501 – Leachate Discharge Manhole at Saggart Treatment Plant and disposed of there, unless otherwise agreed by the Agency.

6.6.2. With the agreement of the Agency leachate and contaminated water may be discharged directly to sewer as provided for in this licence.

6.6.3. The licensee shall at no time discharge or permit to be discharged into the sewer any liquid matter or thing which is or may be liable to set or congeal at average sewer temperature or is capable of giving off any inflammable or explosive gas or any acid, alkali or other substance in sufficient concentration to cause corrosion to sewer pipes, penstock and sewer fittings or the general integrity of the sewer.

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

CONDITION 7 NUISANCE CONTROL

7.1 The licensee shall ensure that vermin, birds, flies, mud, dust, 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 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 10.00 a.m. of the next working day after such waste is discovered.

- 7.4 The licensee shall ensure that all vehicles delivering waste to and removing waste and materials from the facility are fully covered.
- 7.5 In dry weather, site roads and any other areas used by vehicles shall be sprayed with water as and when required to minimise airborne dust nuisance.
- 7.6 All vehicles leaving the working face shall use both the dry wheel shake-out unit at the exit from the cells area and the wheelwash unit at the entrance to the Marshalling Yard.
- 7.7 There shall be no queuing of waste vehicles on the public access road prior to entering the facility.
- 7.8 Bird Control
- 7.8.1 Birds shall be prevented from gathering on and feeding at the facility by the use the bird control scheme submitted on 30th April 1999, unless otherwise agreed by the Agency. The birds of prey and/or other techniques shall be in place on the facility and shall maintain their presence every day, from before dawn to after dark, until the waste activities cease and all the waste is capped to the written satisfaction of the Agency. The use of gas operated bird scaring devices is prohibited at the facility.
- 7.9 The precautions set out in the "Operational Management Plan, Rev.2 24/3/1997 (ET/MB); Vermin", shall be carried out to prevent, control and eradicate infestations of insects, pests and vermin unless otherwise instructed or agreed by the Agency.
- 7.10 Noise/Disturbance
- 7.10.1 The licensee shall ensure the following;
- (i) that low sound level plant is used on site;
 - (ii) all heavy machinery and mechanical plant used on site are fitted with acoustic panels and acoustics mufflers (exhaust silencers); and
 - (iii) the use of suitable noise screens/control measures for waste activities in Cells 11-15 which shall be agreed in advance with the Agency.

REASON: To provide for the control of nuisances

CONDITION 8 MONITORING

- 8.1 The licensee shall carry out such sampling, analyses, measurements, examinations, maintenance and calibrations at such locations and frequencies as set out in *Schedule D: Monitoring*, of this licence and as specified in 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 permanent gas monitoring systems in the site office and any other enclosed structures at the facility. All landfill gas monitoring equipment, other than permanent monitoring systems within buildings, shall be certified as being intrinsically safe.

- 8.6 Updated appropriately scaled drawing(s) showing all the monitoring locations that are stipulated in this licence include the reference code of each monitoring point shall be maintained. Any subsequent amendments to the monitoring locations shall be submitted on an updated drawing(s).
- 8.7 Groundwater Monitoring
- 8.7.1 Subject to the agreement of the well owners, all private wells as referred to in correspondence dated 6th April 1999 shall be monitored as set out in *Schedule D: Monitoring*, of this licence.
- 8.7.2 The licensee shall carry out a review of the monitoring of the private wells referred to above to determine what effect, if any, the facility has had to the quantity of water supply of these wells. This review shall be carried out as required by the Agency.
- 8.8 Surface Water Monitoring
- 8.8.1 Monitoring of the surface water discharge flow shall be as detailed in Section 17.3 of the Environmental Management Plan dated 11th July 2002 unless otherwise agreed by the Agency. Details of this monitoring and monitoring of the flow in the Hartwell River shall be included in the quarterly surface water monitoring reports required in this licence.
- 8.9 Noise Monitoring
- 8.9.1 Noise monitoring locations, as referred to in *Schedule D: Monitoring, Table D.1.1 Monitoring Locations*, of this licence shall be agreed by the Agency.
- 8.10 Meteorological Monitoring
- 8.10.1 The licensee shall make arrangements for representative meteorological data to be collated for the facility to fulfil the requirements of *Schedule D.6: Meteorological Monitoring*, of this licence.
- 8.11 Topographical Survey
- 8.11.1 A topographical survey shall be carried out annually including a measurement of the remaining available void space. The survey shall be in accordance with any written instructions issued by the Agency.
- 8.12 Biological Assessment
- 8.12.1 A biological assessment of the Hartwell and Kill Rivers shall be undertaken annually. This assessment shall use appropriate biological methods such as the EPA Q-rating system for the assessment of rivers and streams.
- 8.13 Stability Assessment
- 8.13.1 The licensee shall carry out a stability assessment of the side slopes of the facility annually.
- 8.14 Odour Monitoring
- 8.14.1 The licensee shall inspect the facility and its environs daily for nuisances caused by odours. This inspection shall include monitoring at the relevant locations specified in *Schedule D: Monitoring, Table D.1.1 Monitoring Locations*, of this licence and incorporate the use of an FID.
- 8.14.2 Within six months of the date of grant of this licence, the licensee shall submit to the Agency for agreement, an Odour Management Plan (OMP) for the facility.
- 8.14.3 The OMP referred to in 8.14.2 shall include measures to control potential sources of odour nuisance, including *inter alia*, provisions regarding:

- (i) Requirements of relevant conditions of this licence;
- (ii) Adequate resources and training on-site to provide for the maintenance, monitoring and operation of the landfill gas extraction system;
- (iii) Acceptance and management of odours waste deliveries;
- (iv) Following completion of waste acceptance in any cell/sub-cell, the licensee shall on a bi-annual basis arrange the carrying out of an independent assessment and report on surface VOC emissions at the facility;
- (v) Use of sacrificial gas extraction systems; phased capping of the waste body; and an interim capping system at inter-cell boundaries;
- (vi) Working face/active cell sizing and covering;
- (vii) Landfill gas collection:- locations of infrastructure including access/haul roads, well design and density, monitoring, condensate management, field balancing, flare/combustion plant operation;
- (viii) Identification of fugitive sources of landfill gas emissions (e.g. from leachate management infrastructure);
- (ix) Monitoring:- VOC surface emissions from capped areas, odour checks off- and on-site, receipt and evaluation/verification of odour complaints received.

8.14.4 To meet the requirements of the OMP, the Licensee shall carry out a monthly review of control measures in place at the facility and maintain findings in a monthly report. This shall include:

- (i) consideration of odour complaints received (including details and nature of the complaints, times and weather conditions, any unusual circumstances, problems, etc.);
- (ii) review of any monitoring, including ambient odour monitoring in accordance with Schedule D.3 carried out (including investigation of complaints and actions taken where relevant);
- (iii) an update on existing landfill gas control infrastructure (including operational status, number of wells and vents connected and unconnected to the landfill gas collection system, quantity of gas collected and flared/utilised, estimated quantity of landfill gas being produced, details of any problems with equipment during period); and
- (iv) details of any remedial/corrective actions taken, where relevant, including actions taken on foot of recommendations from previous reports; and
- (v) recommendations and implementation of same.

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

8.14.5 The licensee shall arrange for an independent odour audit of the facility on a quarterly basis unless otherwise agreed by the Agency. The extent and timing of these audits shall be agreed by the Agency.

8.14.6 The OMP shall be reviewed annually and any updates/amendments submitted to the Agency as part of the Annual Environmental Report.

8.14.7 In relation to surface emissions from the waste body and identified features, the following shall constitute a trigger level:

- (i) VOC greater than or equal to 50ppmv average over capped area; or
- (ii) VOC greater than or equal to 100ppmv instantaneous reading on open surfaces within the landfill footprint; or

- (iii) VOC greater than or equal to 500ppmv around all identified features.
- 8.14.8 Leachate holding tanks/lagoons shall be covered, and head gases vented to treatment as may be required by the Agency.
- 8.14.9 All odorous or odour-forming wastes shall be covered as soon as practicable and in any case at the end of the working day.
- 8.14.10 Where it is proposed to take biological sludges at the facility, these must be subject to appropriate pre-treatment in advance of acceptance at the facility.
- 8.14.11 When siting and operating landfill gas infrastructure, regard shall be had to the potential for, and mitigation of, odour nuisance.
- 8.15 Nuisance Monitoring
- 8.15.1 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 and dust.
- 8.16 Landfill Gas Utilisation Plant
- 8.16.1 The licensee shall install and maintain continuous carbon monoxide monitors on the outlets of the gas engine(s).
- 8.17 All automatic monitors and samplers shall be functioning at all times (except during maintenance and calibration) when the activity is being carried on unless alternative sampling or monitoring arrangements have been agreed in writing by the Agency. In the event of the malfunction of any continuous monitor, the licensee shall inform the Agency within twenty-four hours of the discovery of the fault and alternative sampling and monitoring facilities shall be put in place. Prior written agreement for the use of alternative equipment, other than in emergency situations, shall be obtained from the Agency.
- 8.18 The licensee shall ensure that any waste acceptance testing and analysis required by this licence shall be carried out by competent laboratories in accordance with CEN-standards. If CEN standards are not available, ISO, national or international standards that will ensure the provision of data of an equivalent scientific quality shall apply.
- 8.19 The licensee shall install on all emission points such sampling points or equipment, including any data-logging or other electronic communication equipment, as may be required by the Agency. All such equipment shall be consistent with the safe operation of all sampling and monitoring systems.

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:-
 - 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 maintain a written Emergency Response Procedure (ERP) at the facility. The ERP shall address any emergency situations which may originate on the facility and shall include provision for minimising the effects of any emergency on the environment.
- 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.
- 9.5 The licensee shall maintain a documented Accident Prevention Policy, which will address the hazards on-site, particularly in relation to the prevention of accidents with a possible impact on the environment. This procedure shall be reviewed annually and updated as necessary.
- 9.6 The Emergency Response Procedure shall be reviewed annually and updated as necessary.

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 excluding those arriving at the Civic Waste Facility. The licensee shall record the following:
- (i) the date and time;
 - (ii) the name of the carrier (including if appropriate, the waste carrier registration details);
 - (iii) the vehicle registration number;
 - (iv) the trailer, skip or other container unique identification number (where relevant);

- (v) the name of the producer(s)/collector(s) of the waste as appropriate;
- (vi) the name of the waste facility (if appropriate) from which the load originated including the waste licence or waste permit register number;
- (vii) a description of the waste including the associated EWC/HWL codes;
- (viii) the quantity of the waste, recorded in tonnes;
- (ix) details of the treatment(s) to which the waste has been subjected;
- (x) the classification of the waste, including whether MSW or otherwise;
- (xi) whether the waste is for disposal or recovery and if recovery for what purpose;
- (xii) the name of the person checking the load; and
- (xiii) where loads or wastes are removed or rejected, details of the date of occurrence, the types of waste and the facility to which they were removed.

10.2 Written Records

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

- a) The quantities of waste 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;
- e) Records of flare maintenance and training provided;
- f) 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;
- g) The date(s) of commencement of leachate re-circulation into new cells; and
- h) The date(s) in which each cell has been filled with waste.

10.3 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.

10.4 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 or sewer to which the leachate was transported; and
- e) Any incidents or spillages of leachate during its removal or transportation.

10.5 A written record shall be kept of the volumes of leachate re-circulated to cells of the landfill. These records shall include as minimum;

- a) The date;
- b) The volume of leachate, in cubic metres, re-circulated; and
- c) The cell(s) to which the leachate was re-circulated.

- 10.6 A written record shall be kept at the facility of the programme for the control and eradication of vermin and fly infestations at the facility. These records shall include as a minimum the following:-
- a) The date and time during which spraying of insecticide is carried out;
 - b) Contractor details;
 - c) Contractor logs and site inspection reports;
 - d) Details of the rodenticide(s) and insecticide(s) used;
 - e) Operator training details;
 - f) Details of any infestations;
 - g) Mode, frequency, location and quantity of application; and
 - h) Measures to contain sprays within the facility boundary.
- 10.7 The licensee shall record all sampling, analyses, measurements, examinations, calibrations and maintenance carried out in accordance with the requirements of this licence.
- 10.9 The waste acceptance procedures established under Condition 1.4.5 shall provide:-
- (i) For the checking of waste documentation on receipt of waste in the waste reception area;
 - (ii) For non pre-cleared customers, the visual inspection and testing of waste in the waste inspection area pending acceptance/rejection;
 - (iii) For the visual inspection of waste when deposited at the working face;
 - (iv) For the keeping for two months of any analytical samples associated with on-site verification sampling of waste accepted at the facility.

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

CONDITION 11 REPORTS AND NOTIFICATIONS

- 11.1 Unless otherwise agreed by the Agency, all reports and notifications submitted to the Agency shall:-
- a) Be sent to the Agency's Regional Inspectorate, McCumiskey House, Richview, Clonskeagh Road, Dublin 14;
 - 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-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 the Eastern Regional Fishery Board and/or Kildare County Council, as appropriate, as soon as practicable and in any case not later than 10:00 a.m. on the following working day after such an incident;
- d) Should any further actions be taken as a result of an incident occurring, the licensee shall forward a written report of those actions to the Agency as soon as practicable and no later than ten days after the initiation of those actions; and
- e) In the event of any incident which relates to discharges to sewer, notify the Plant Manager of the Osberstown Wastewater Treatment Works, immediately.

11.3 Reports relating to Facility Operations

11.3.1 Leachate handling and reporting to the sanitary authority:-

- (a) The licensee shall submit to the Kildare County Council daily flow records for emissions to sewer quarterly.
- (b) The licensee shall submit monitoring data on emissions to sewer to the Plant Manager of the Osberstown Wastewater Treatment Works within two weeks of availability.

11.4 European Pollution Emissions Register (EPER)

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

11.5 Annual Environmental Report

11.5.1 The licensee shall submit to the Agency for its agreement, by 31st March each year, an Annual Environmental Report (AER).

11.5.2 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.

11.6 Waste Recovery Reports

The licensee shall as part of the Annual Environmental Report for the site submit a report on the contribution by this facility to the achievement of the waste recovery objectives stated in Condition 2.3.2.1 and as otherwise may be stated in National and European Union waste policies and shall, as a minimum, include tonnages of the following:

- (i) the recovery of Construction and Demolition Waste;
- (ii) the recovery of other waste in landfill operations, including restoration;
- (iii) the recovery of energy through landfill gas combustion.

11.7 Reporting to demonstrate compliance with diversion targets

The Licensee shall report to the Agency such data and records, and at such frequency, as may be specified by the Agency in order to demonstrate compliance with the requirements of Condition 1.6.1. From 1 January 2010, and unless otherwise advised by the Agency, the licensee shall submit quarterly summary reports to the Agency within one week of the end of each quarter on the quantity of MSW and BMW accepted at the landfill during the preceding quarter and on a cumulative basis for the calendar year to date. The report shall detail the tonnage of MSW and BMW accepted and the basis (including all calculation factors) on which the figures have been calculated.

11.8 The licensee shall, in writing, notify the Agency without delay of any waste arriving at the facility that does not meet the waste acceptance criteria

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 €32,006, or such sum as the Agency from time to time determines, having regard to variations in the extent of reporting, auditing, inspection, sampling and analysis or other functions carried out by the Agency, towards the cost of monitoring the activity as the Agency considers necessary for the performance of its functions under the Waste Management Acts 1996 to 2008. The first payment shall be a pro-rata amount for the period from the date of grant of this licence to the 31st day of December, and shall be paid to the Agency within one month from the date of grant of the licence. In subsequent years the licensee shall pay to the Agency such revised annual contribution as the Agency shall from time to time consider necessary to enable performance by the Agency of its relevant functions under the Waste Management Acts 1996 to 2008, and all such payments shall be made within one month of the date upon which demanded by the Agency.

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 defray its costs in regard to items not covered by the said annual contribution.

12.2 Sanitary Authority Charges

12.2.1 The licensee shall pay to the Sanitary Authority such sum as may be determined from time to time, having regard to the variations in the cost of providing drainage and the variation in effluent reception and treatment costs. Payment to be made annually on demand.

12.2.2 The licensee shall pay an annual charge to the Sanitary Authority towards the cost of monitoring the trade effluent. This amount will be revised from time to time. Payment to be made on demand.

12.3 Financial Provision for Closure, Restoration and Aftercare

12.3.1 The licensee shall from a date to be set by the Agency establish and maintain a fund, or provide a written guarantee, that is adequate to assure the Agency that the licensee is at all times financially capable of implementing the Restoration and Aftercare Plan required by Condition 4. The type of fund established and means of its release/recovery shall be agreed by the Agency prior to its establishment.

12.3.2 Any fund established shall be maintained in an amount always sufficient to underwrite the current Restoration and Aftercare Plan.

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

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

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

Where:-

Cost = Revised restoration and aftercare cost

ECOST = Existing restoration and aftercare cost

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

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

12.4 Cost of landfill of waste

In accordance with the provisions of Section 53A of the Waste Management Acts 1996 to 2008, the licensee shall ensure the costs involved in the setting up and operation of the facility, as well as the costs of closure and after-care (including cost of provision of financial security) for a period of at least 30 years (post closure) shall be covered by the price to be charged for the disposal of waste at the facility. The statement required under Section 53A(5) of said Acts is to be included as part of the AER.

12.5 Environmental Liabilities

12.5.1 The licensee shall as part of the AER, provide an annual statement as to the measures taken or adopted at the site in relation to the prevention of environmental damage, and the financial provisions in place in relation to the underwriting of costs for remedial actions following anticipated events (including closure) or accidents/incidents, as may be associated with the carrying on of the activity.

12.5.2 The licensee shall arrange for the completion, by an independent and appropriate qualified consultant, of a comprehensive and fully costed Environmental Liabilities Risk Assessment (ELRA) to address the liabilities from past and present activities.-A report on this assessment shall be submitted to the Agency for agreement within twelve months of date of grant of this licence. The ELRA shall be reviewed as necessary to reflect any significant change on site, and in any case every three years following initial agreement. The results of the review shall be notified as part of the AER.

12.5.3 As part of the measures identified in Condition 12.5.1, the licensee shall, to the satisfaction of the Agency, make financial provision to cover any liabilities associated with the operation (including closure and aftercare) of the facility not already covered in Condition 12.3. The amount of indemnity held shall be reviewed and revised as necessary, but at least annually. Proof of renewal or revision of such financial indemnity shall be included in the annual 'Statement of Measures' report identified in Condition 12.5.1.

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.1.1 Waste Categories and Quantities

Waste Type	Maximum (Tonnes Per Annum)
Baled Municipal Waste	600,000

Table A.1.2 Total Permitted Landfill Capacity

Total quantity of waste permitted to be placed at the landfill facility (over authorised life of facility)	5,638,705m ³
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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.
Any other works notified in writing by the Agency.

SCHEDULE C : Emission Limits

C.1 Noise Emissions:

(Measured at the specified boundary locations 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).

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

C.3 Dust Deposition Limits:

(Measured at the monitoring points indicated in Table D.1.1).

Level (mg/m ² /day) ^{Note 1}
350

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

C.4 Surface Water Discharge Limits:

Measured at the outlet from the Surface Water Retention Pond (SW2).

Flow (l/s)
1,000

C.5 Emission Limits Values for Landfill Gas Plant

Emission Point Reference numbers: As per Table D.1.1 and as agreed by the Agency in advance.

Volume to be emitted: 3000m³/hr unless agreed otherwise by the Agency.

Minimum discharge height: 5m

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

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

C.6 Emission to Sewer

Name of Receiving Sewer: Sewer discharge to Osberstown Wastewater Treatment Works

Volume to be emitted: Maximum in any one day: 200 m³

Maximum rate per hour: 8 m³

Parameter	Emission Limit Value	
	mg/l	kg/day
pH	6.0 – 9.0	
BOD	200	40
COD	750	150
Suspended Solids	250	50
Total Organic Carbon	300	60
Chloride (as Cl)	2250	450
Ammonia (as N)	5	1
Nitrate (as N)	1000	200
Orthophosphate (as P)	20	4



SCHEDULE D : Monitoring

D.1 Monitoring Locations

Monitoring locations shall be those as set out in Table D.1.1 and Drawings AWL02-14C 7 AWL02-15B.

Table D.1.1 Monitoring Locations

Landfill Gas	Landfill Gas Flare / Utilisation Plant	Dust Deposition / Odour	Noise
Stations		Stations	Stations
Gas vents/wells within the waste and including "Gavin's Dump"	LFGF1 ^{Note 2}	<u>Dust</u> D1 D2 D3 D4 D5	N2 N3 N4 N5 N6
Perimeter Boreholes	Emission points from additional plant ^{Note 1}	<u>Odour – On-site:</u> Minimum of 4 fixed locations + 4 others dependent on wind direction (2 upwind/ 2 downwind)	Amended N1 (to be along facility boundary) New N7 (to be located between N2 and N3)
Site Offices		<u>Odour – Off-site:</u> As for onsite	
Surface Water	Ground Water	Leachate	
Stations	Stations	Stations	
SW1 SW2 SW3 SW4	^{Note 4 (i)} MW2 MW3(MW22) MW8 (MW6) MW11 MW14 (MW15) MW16 MW20 (MW21)	^{Note 5 (i)} Leachate collection points/collection sumps for Cells 1, 8 and 11. Leachate lagoon Balance Tank (LB) Leachate wells in "Gavin's Dump"	
New SW5 (to be at inlet to Surface Water Retention Pond) ^{Note 3}	^{Note 4 (ii)} All of MW1 to MW22	^{Note 5 (ii)} As per Note 5 (i) above and including all leachate collection points/collection sumps for all cells	
	^{Note 4 (iii)} PW1 to PW5		

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

Note 2: Emission point from existing flare (Condition 3.13).

Note 3: To be agreed in advance with the Agency.

Note 4: (i) To be monitored for all parameters in accordance with Table D.5.1. Those wells in brackets may be used as alternatives if agreed in advance with the Agency.
(ii) To be monitored for levels (mOD) in accordance with Table D.5.1.

(iii) To be monitored for all parameters in Table D.5.1 at frequencies specified in correspondence of 6th April 1999.

Note 5: (i) To be monitored for all parameters in accordance with Table D.5.1.

(ii) To be monitored for levels (above liner/base where relevant) in accordance with Table D.5.1.

D.2 Landfill Gas

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

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

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

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

D.3 Dust/Odour Monitoring

Table D.3.1 Dust Monitoring Frequency and Technique

Parameter (mg/m ² /day)	Monitoring Frequency	Analysis Method/Technique
Dust	Three times a year ^{Note 2}	Standard Method ^{Note 1}
Ambient Odour	Monthly	As agreed with the Agency

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: Twice 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]	Bi -Annually	Standard ^{Note 1}
L(A) ₁₀ [30 minutes]	Bi -Annually	Standard ^{Note 1}
L(A) ₉₀ [30 minutes]	Bi -Annually	Standard ^{Note 1}
Frequency Analysis (1/3 Octave band analysis)	Bi -Annually	Standard ^{Note 1}

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

D.5 Surface Water, Groundwater and Leachate

Table D.5.1 Water and Leachate - Parameters / Frequency

Parameter ^{Note 1}	SURFACE WATER ^{Note 2}	GROUNDWATER	LEACHATE ^{Note 3}
	Monitoring Frequency	Monitoring Frequency	Monitoring Frequency
Visual Inspection/Odour ^{Note 2}	Weekly	Quarterly	Quarterly
Groundwater Level	Not Applicable	Monthly	Not Applicable
Leachate Level	Not Applicable	Not Applicable	Continuous
Ammoniacal Nitrogen	Quarterly ^{Note 6}	Quarterly	Annually
BOD	Quarterly	Not Applicable	Annually
COD	Quarterly	Not Applicable	Annually
Chloride	Quarterly	Quarterly	Annually
Dissolved Oxygen	Quarterly	Quarterly	Not Applicable
Electrical Conductivity	Quarterly ^{Note 6}	Quarterly	Annually
pH	Quarterly ^{Note 6}	Quarterly	Annually
Total Suspended Solids	Quarterly ^{Note 6}	Not Applicable	Not Applicable
Temperature	Quarterly ^{Note 6}	Quarterly	Quarterly
Metals / non metals ^{Note 3}	Annually	Annually	Annually
Cyanide (Total)	Not Applicable	Annually	Annually
Fluoride	Not Applicable	Annually	Annually
List I/II organic substances ^{Note 4}	Once off ^{Note 5}	Annually ^{Note 5}	Once off ^{Note 5}
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
Faecal Coliforms	Not Applicable	Annually	Not Applicable
Total Coliforms	Not Applicable	Annually	Not Applicable
Biological Assessment	Annually ^{Note 7}	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, manganese, nickel, potassium, 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 by the Agency for these parameters.

Note 6: Discharge of diverted surface water/groundwater shall be monitored on a monthly basis for these parameters.

Note 7: Appropriate biological methods (such as EPA Q-Rating System) to be used for the assessment of rivers and streams. River locations only.

D.6 Meteorological Monitoring

Table D.6.1 Meteorological Monitoring:

At the on site weather station unless otherwise instructed or agreed by 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 for these parameters may be decreased with the agreement of the Agency.

D.7 Landfill Gas Combustion Plant/Enclosed Flare

Location: Existing Flare (Condition 3.13) and for additional plant to be agreed in advance by the Agency

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

Parameter	Flare (enclosed)	Utilisation Plant	Analysis Method ^{Note 1} / Technique ^{Note 2}
	Monitoring Frequency	Monitoring Frequency	
Inlet			
Methane (CH ₄) % v/v	Continuous	Weekly	Infrared analyser/flame ionisation detector/thermal conductivity
Carbon dioxide (CO ₂) %v/v	Continuous	Weekly	Infrared analyser/ thermal conductivity
Oxygen (O ₂) %v/v	Continuous	Weekly	Electrochemical/thermal conductivity
Total Sulphur	Annually	Annually	Ion chromatography
Total Chlorine	Annually	Annually	Ion chromatography
Total Fluorine	Annually	Annually	Ion Selective Electrode
Process Parameters			
Combustion Temperature	Continuous	Quarterly	Temperature Probe/datalogger
Outlet			
CO	Continuous	Continuous ^{Note 3}	Flue gas analyser/datalogger
NO _x	Annually	Continuous ^{Note 3}	Flue gas analyser
SO ₂	Annually	Annually	Flue gas analyser
TOC	Annually	Not applicable	Flame ionisation
Total VOCs	Not applicable	Annually	Flame ionisation
Total non-methane VOCs	Not applicable	Annually	Adsorption-thermal desorption
Particulates	Note applicable	Annually	Isokinetic/Gravimetric
Hydrochloric acid	Annually	Annually	Impinger / Ion Chromatography
Hydrogen fluoride	Annually	Annually	Impinger / Ion Chromatography

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

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

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

D.8 Emission to sewer monitoring

Table D.8 Emission to Sewer - Parameters / Frequency

Where leachate is discharged directly to sewer monitoring shall be undertaken in combination with the leachate monitoring set out in Table D 5.1 to provide for the following requirements.

Parameter	Monitoring Frequency	Analysis Method/Technique
Flow	Continuous	On-line flow meter with recorder/data logger
PH	Continuous	pH electrode/meter and recorder/data logger
TOC	Monthly	Standard Method
Chemical Oxygen Demand	Monthly	Standard Method
Biochemical Oxygen Demand	Monthly	Standard Method
Suspended Solids	Monthly	Standard Method
Total Organic Carbon	Monthly	Standard Method
Ammonia (as N)	Monthly	Standard Method
Orthophosphate (as P)	Quarterly	Standard Method
Nitrate (as N)	Quarterly	Standard Method
Fluoride	Quarterly	Standard Method
Chloride (as Cl)	Quarterly	Standard Method
Sulphate	Quarterly	Standard Method
List I/II organic substances ^{Note 2}	Quarterly	Standard Method
Phenols	Quarterly	Standard Method
TKN	Quarterly	Standard Method
Cyanide (Total)	Quarterly	Standard Method
Total alkalinity	Quarterly	Standard Method
Metals ^{Note 1}	Quarterly	Standard Method

Note 1: Metals and elements to be analysed should include as a minimum: arsenic, boron, cadmium, calcium, chromium (total), copper, iron, lead, magnesium, manganese, mercury, nickel, silver, gold titanium, tin, antimony, bismuth, platinum, potassium, sodium and zinc.

Note 2: 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).

D.9 Waste Monitoring

Waste class	Frequency	Parameter	Method
Bio-stabilised residual waste	Every 200 tonnes from each source		

SCHEDULE E : Recording and Reporting to the Agency

Report	Reporting Frequency ^{Note 1}	Report Submission Date
Environmental Management System Updates	Annually	One month after the end of the year reported on.
Annual Environment Report (AER)	Annually	By 31 st March each year.
Notification of waste loads not meeting waste acceptance criteria	As they occur	As per Condition 11.8
Compliance with waste diversion targets	As required by the Agency	As per Condition 11.7
Bund, tank and container integrity assessment	Every three years	one month after end of the three year period being reported on.
Specified Engineering Works reports	As they arise	Prior to the works commencing.
Monitoring of landfill gas	Quarterly	Ten days after end of the quarter being reported on.
Monitoring of Surface Water Quality	Quarterly	Ten days after end of the quarter being reported on.
Monitoring of Groundwater Quality	Quarterly	Ten days after end of the quarter being reported on.
Monitoring of Leachate	Quarterly	Ten days after end of the quarter being reported on.
Meteorological Monitoring	Annually	One month after end of the year being reported on.
Dust Monitoring	Three times a year	Ten days after the period being reported on.
Noise Monitoring	Bi-annually	One month after end of the period being reported on.
Odour audit	Quarterly	Ten days after the period 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 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 / discharged off-site.

Report on development works undertaken during the reporting period, and a timescale for those proposed during the coming year.

Report on restoration of completed cells/ phases.

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

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

Estimated annual and cumulative quantity of indirect emissions to groundwater.

Annual water balance calculation and interpretation.

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

Schedule of Environmental Objectives and Targets for the forthcoming year.

Full title and a written summary of any procedures developed by the licensee in the year which relates to the facility operation.

Tank, pipeline and bund testing and inspection report.

Reported incidents and Complaints summaries.

Review of Nuisance Controls.

Updates/Amendments to Odour Management Plan (OMP).

Updates to Landfill environmental Management Plan (LEMP)

Review of Environmental Liabilities.

Report on Waste Recovery

Report on the use of a portion of the waste charges for appropriate local environmental improvement projects during the year and details of plans for forthcoming year.

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.

Statement of compliance of facility with any updates of the relevant Waste Management Plan

Statement on the achievement of waste acceptance and treatment obligations.

Any other items specified by the Agency.

