



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

**WASTE LICENCE
PROPOSED DECISION**

Waste Licence	W004
Register Number:	
Applicant:	South Dublin County Council
Location of Facility:	Arthurstown Landfill Arthurstown, Kill, Co. Kildare

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Activities Licensed

In pursuance of the powers conferred on it by the Waste Management Act, 1996, the Environmental Protection Agency (the Agency) proposes, under Section 40(1) of the said Act to grant this Waste Licence to South Dublin County Council, P.O. Box 4122, Town Square, Tallaght, Dublin 24 to carry on the waste activities listed below at Arthurstown Landfill, Arthurstown, Kill, County Kildare, subject to 11 No. conditions, with the reasons therefor and the associated schedules attached thereto set out in the licence.

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

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

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

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

Class 6: Biological treatment not referred to elsewhere in this Schedule which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1 to 10 of this Schedule;

Class 7: Physico-chemical treatment not referred to elsewhere in this Schedule (including evaporation, drying and calcination) which results in final compounds or mixtures which are disposed of by means of any activity referred to in paragraphs 1 to 10 of this Schedule;

INTERPRETATION

Act	The Waste Management Act, 1996 (No. 10 of 1996).
Aerosol	A suspension of solid or liquid particles in a gaseous medium.
Adequate lighting	20 lux measured at ground level.
Attachment	Any reference to Attachments in this licence refers to attachments submitted as part of the waste licence application.
BATNEEC	Best Available Technology Not Entailing Excessive Cost as defined in Section 5 (2) of the Act.
Commercial waste	As defined in Section 5 (1) of the Act.
Containment boom	A boom which can contain spillages and prevent these from entering drains or watercourses.
Daytime	0800 hrs to 2200 hrs.
Emission	As defined in Section 5 (1) of the Act.
Environmental Pollution	As defined in Section 5 (1) of the Act.
European Waste Catalogue (EWC)	A harmonised, non-exhaustive list of wastes drawn up by the European Commission and published as Commission Decision 94/3/EC and any subsequent amendment published in the Official Journal of the European Community.
Facility	That area or areas defined under Condition 1.3 of this licence.
Hazardous Waste	As defined in Section 4 (2) of the Act.
Household Waste	As defined in Section 5 (1) of the Act, Household waste is waste produced within the curtilage of a building or self-contained part of a building used for the purposes of living accommodation.
Industrial waste	As defined in Section 5 (1) of the Act.
Incident	Any reference to an incident in this licence means an incident as defined in Condition 3.1
Landfill	A waste disposal facility used for the deposit of waste onto or under land as defined in Section 5 (1) of the Act.
Landfill Gas	Gases generated from landfilled waste.
Leachate	Any liquid percolating through the deposited waste and emitted from or contained within a landfill as defined in Section 5 (1) of the Act.

Leachate Recirculation	The practice of returning leachate to the landfill, from which it has been abstracted.
LEL (Lower Explosive Limit)	The lowest percentage concentration by volume of a mixture of flammable gas with air which will propagate a flame at 25°C and atmospheric pressure.
Licence	A Waste Licence issued in accordance with the Act.
List I	Substances listed in the EC Directives 76/464/EEC and 80/68/EEC and amendments.
List II	Substances listed in the EC Directives 76/464/EEC and 80/68/EEC and amendments.
Maintain	Keep in a fit state, including such regular inspection, servicing and repair as may be necessary to adequately perform its function.
Monthly	At least 12 times per year, at approximately monthly intervals.
Municipal Waste	As defined in Section 5 (1) of the Act.
Night-time	2200 hrs to 0800 hrs.
Non-hazardous waste	Non-Hazardous Waste is any waste which is not a hazardous waste as defined in the Act.
Recovery	As defined in Section 4 (4) of the Act.
Sludge	The accumulation of solids resulting from chemical coagulation, flocculation, and/or sedimentation after water or wastewater treatment.
Specified Emissions	Those emissions listed in Schedule G of this licence.
Specified Engineering Works	Those engineering works listed in Schedule F of this licence.
The Licensee	South Dublin County Council.
Trigger Level	A parameter value which when achieved or exceeded requires certain actions to be taken.
Waste	As defined in Section 4 (1) of the Act.
Waste disposal activity	Includes the activities referred to in Section 4 of the Act and listed in the Third Schedule thereto.
Waste recovery activity	Includes the activities referred to in Section 4 of the Act and listed in the Fourth Schedule thereto.
Working Day	Monday to Saturday 08.30 to 18.00.
Working Face	The area of the site in which waste other than cover material is being deposited.

CONDITIONS

CONDITION 1 SCOPE

- 1.1 The waste activities authorised by this licence are listed and described in *Schedule A: Waste Activities*. Waste activities at the facility shall be restricted to those listed in Schedule A and any restrictions set down therein.
- 1.2 All activities shall be controlled, operated and maintained in accordance with the conditions and schedules attached to this licence. All programmes and plans required to be carried out under the terms of this licence become part of this licence.
- 1.3 Waste activities shall be restricted to the area of land outlined in red on the Site Plan, Drawing No. 9609933 00, Revision 1, "1:5000 Location Plan" of the waste licence application. Any reference in this licence to "facility" shall mean the area thus outlined in red.
- 1.4 Wherever a condition of this licence requires the licensee to submit a plan, programme, or proposal to the Agency for its agreement, the licensee shall subsequently modify such documentation in accordance with, and within the time stated in, any written instructions from the Agency. The actions described therein shall be carried out within any timescale specified in writing by the Agency but shall not be undertaken without the prior written agreement of the Agency.
- 1.5 This licence is for the purposes of waste licensing under the Waste Management Act 1996 only and nothing in this licence shall be construed as negating the licensee's statutory obligations or requirements under any other enactments or regulations.
- 1.6 Where the Agency considers that a non-compliance with the conditions of this licence has occurred, it may serve a notice on the licensee specifying:
 - a) that only those wastes as specified, if any, in the notice are to be accepted at the facility after the date specified in the notice; and,
 - b) that the licensee shall undertake the works stipulated in the notice, and/or otherwise comply with the requirements of the notice as set down therein, within any time-scale contained in the notice; and,
 - c) that the licensee shall carry out any other requirement specified in the notice.

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

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

CONDITION 2 MANAGEMENT OF THE ACTIVITY

2.1 Environmental Management System.

2.1.1 The licensee shall, within eighteen months from the date of grant of this licence, submit to the Agency for its agreement a proposal for a documented Environmental Management System (EMS) for the facility. Following the written agreement of the Agency, the licensee shall establish and maintain such a system.

2.1.2 The EMS shall describe, assess and review the design, construction, operation, monitoring, management and maintenance of the facility. The EMS shall be updated on an annual basis with amendments submitted to the Agency for agreement. The EMS shall include as a minimum those elements specified in the Conditions 2.2 to 2.9 below:

2.2 Schedule of Environmental Objectives and Targets.

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

2.2.2 The licensee shall have regard to those matters listed in *Schedule B Content of Annual Environmental Report* when establishing the Schedule of Objectives and Targets. The Schedule shall address a five year period as a minimum and shall be reviewed and submitted annually to the Agency for its agreement.

2.3 Environmental Management Programme.

2.3.1 The licensee shall, not later than nine months from the date of grant of this licence, submit to the Agency for its agreement an Environmental Management Programme (EMP). The EMP shall include a time-scale for achieving the Schedule of Objectives and Targets.

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

2.4 Mass Balance of Specified Substances.

2.4.1 The licensee shall, at a date to be agreed in writing with the Agency, and having regard to any Regulations made under Section 64 of the Waste Management Act, 1996, submit to the Agency for its agreement a Mass Balance of Specified Substances (MBSS), which shall include a list of substances and the methodology to be used in their determination.

2.4.2 The MBSS shall be reviewed and submitted to the Agency for its agreement annually.

2.5 Corrective Action

2.5.1 The licensee shall establish and maintain written Corrective Action Procedures to ensure that corrective action is taken should the specified requirements of this licence not be fulfilled. The responsibility and authority for initiating further investigation and corrective action in the event of a reported non-compliance with this licence shall be defined.

2.6 Awareness and Training.

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

2.7 Responsibilities.

2.7.1 Within three months from the date of grant of this licence, the licensee shall submit written details of the management structure of the facility for the agreement of the Agency. Any proposed changes in the management structure shall be submitted in writing to the Agency for its agreement. 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;
- b) details of the responsibilities for each individual named under a) above;
- c) details of the relevant experience, competence and qualifications held by each of the persons nominated under a) above; and,
- d) contingency arrangement for the absences of the named persons from the facility.

This information shall take into account the need for adequate staff coverage in relation to absences from work due to matters such as annual leave, illness, and other absences.

2.8 Communications.

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

2.9 Annual Environmental Report.

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

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

2.10 The licensee shall employ a suitably qualified and experienced facility manager who shall be designated as the person in charge. The facility manager or a suitably qualified and experienced deputy, shall be present at all times during the operation of the facility.

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

2.12 The licensee shall provide a copy of this licence to all relevant personnel whose duties relate to any condition of this licence.

Reason: *To make provision for management of the activity on a planned basis having regard to the desirability of ongoing assessment, recording and reporting of matters affecting the environment.*

CONDITION 3 NOTIFICATION AND RECORD KEEPING

- 3.1 The licensee shall make a written record of the following incidents:
- a) any emission which results in the contravention of any relevant standard, including any standard for an environmental medium, or any relevant emission limit value, prescribed under any relevant enactment;
 - b) any emission which does not comply with the requirements of this licence;
 - c) any trigger level specified in this licence or in the EMS which is attained or exceeded;
 - d) any malfunction of any environmental control system;
 - e) any indication that contamination has, or may have, taken place;
 - f) any occurrence with the potential for environmental pollution; and,
 - g) any emergency.
- 3.2 The written record of an incident shall include the following:
- a) the date, time and location of the incident;
 - b) a description of the incident, including the nature, source and cause of the emission;
 - c) an evaluation of the environmental pollution, if any, caused by the incident;
 - d) the steps taken to minimise the emissions/malfunction;
 - e) the steps taken to avoid recurrence; and,
 - f) any other remedial action undertaken.
- 3.3 Unless otherwise instructed in writing by the Agency, the licensee shall notify the Agency by telephone as soon as practicable and in any case not later than 10.00am the following working day after the occurrence of any incident.
- 3.4 Unless otherwise instructed in writing by the Agency, the licensee shall submit the written record to the Agency as soon as is practicable and in any case within five working days after the occurrence of any incident.
- 3.5 Should any further actions be taken after the date of written notification, as a result of an incident occurring, the licensee shall forward a written report of those actions to the Agency as soon as practicable and no later than ten days after the initiation of those actions.
- 3.6 Copies of all monitoring and analyses results relating to the facility shall be forwarded to the Agency at the reporting frequencies set out in *Schedule D: Recording and Reporting to the Agency*, unless otherwise agreed in writing in advance with the Agency.
- 3.7 The licensee shall forward all notifications, records, and reports, as set out in *Schedule D: Recording and Reporting to the Agency*, to the Agency's headquarters unless an alternative location is agreed in advance in writing with the Agency. The format of all notifications, records and reports shall be to the satisfaction of the Agency. Unless otherwise agreed in writing with the Agency, one original and three copies shall be submitted.

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- 3.8 In the event of any incident which relates to discharges to surface water, or which affects the interests of the Local Authority, the licensee shall notify the Eastern Regional Fishery Board and/or Kildare County Council, as appropriate, as soon as practicable by telephone and in writing (by facsimile if available) and in any case not later than 10:00am on the following working day after such an incident.
- 3.9 Unless otherwise agreed in advance in writing with the Agency, the licensee must give at least fourteen days notice to the Agency of the following events:
- a) the cessation of waste disposal activities at the facility for a period in excess of twenty-eight days;
 - b) the re-commencement of waste disposal activities at the facility following a period of cessation referred to at a) above.
- 3.10 Unless otherwise agreed in advance in writing with the Agency, the licensee shall submit copies of the results of all monitoring required in *Schedule E: Monitoring* and a written interpretation of those results setting out their significance to the Agency quarterly. The format in which the results and the interpretation are submitted shall be in accordance with any written guidelines issued by the Agency.
- 3.11 Provision shall be made for the transfer of environmental information in relation to this licence to the Agency's computer system, as may be requested in writing by the Agency. Such transfer shall be carried out within any timescale specified in writing by the Agency.
- 3.12 All written records, reports and other documents submitted to the Agency shall be certified accurate and representative by the licensee.
- 3.13 Unless otherwise agreed in advance in writing with the Agency, all written records, reports and other documents required to be maintained under this licence shall be retained by the licensee until the licensee receives notice from the Agency in accordance with Section 48(8) of the Waste Management Act 1996. The licensee shall then transfer documentation specified by the Agency, or copies of it, to the Agency within a time and in the manner specified in writing by the Agency.
- 3.14 Unless otherwise agreed in advance in writing with the Agency, copies of all written records, reports and other documents referred to in this licence shall be maintained by the licensee in the facility office shown in Drawing No. 96-09933 03, Revision 9, "Layout of Stage 1 & Phase 4" and referred to therein as the Admin/Lab, and shall be made available to the Agency at all reasonable times.
- 3.15 The licensee shall provide copies of any written records, reports and other documents referred to in this licence to the Agency upon written request, within the time specified in writing by the Agency.
- 3.16 The licensee shall also keep the following documents at the facility office:
- a) the current waste licence relating to the facility;
 - b) any previous waste licence in respect of the facility;
 - c) the current EMS for the facility;
 - d) the previous year's AER for the facility;
 - e) all written procedures produced by the licensee which relate to the licensed activities.
- 3.17 The licensee shall maintain a written record for each load of waste arriving at the facility. The licensee shall record the following:

- a) the name of the carrier;
 - b) the vehicle registration number;
 - c) the name of the producer(s)/collector(s) of the waste as appropriate;
 - d) a description of the waste;
 - e) the quantity of the waste, recorded in tonnes;
 - f) the name of the person checking the load; and,
 - g) where loads or parts thereof are removed or rejected, details of the date of occurrence, the types of waste and the facility to which they were removed.
- 3.18 The licensee shall keep a written record of each consignment of leachate removed from the facility. The licensee shall record 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;
 - d) the name and address of the sewer or Waste Water Treatment Plant (WWTP) to which the leachate was discharged; and,
 - e) any incidents of spillage of leachate during its removal or transport offsite.
- 3.19 The licensee shall maintain a written record of all complaints of an environmental nature related to the operation of the activity. Each such record shall give details of the following:
- a) date and time of the complaint;
 - b) the name of the complainant;
 - c) details of the nature of the complaint;
 - d) actions taken in respect of the complaint and the results of such actions; and,
 - e) the response made to each complainant.

Reason : To provide for the notification of incidents, to update information on the activity and to provide for the keeping of records.

CONDITION 4 SITE INFRASTRUCTURE

- 4.1 The licensee shall establish all infrastructure referred to in this licence prior to the commencement of the licensed activities or as agreed in advance in writing with the Agency.
- 4.2 Site Notice Board

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

4.2.2 The board shall clearly show:

- a) the name and telephone number of the facility;
- b) the normal hours of opening;
- c) the name, address and telephone number of the licence holder;
- d) an emergency out of hours contact telephone number;
- e) the name, address and telephone number of the operator of the facility; and,
- f) the waste licence reference number.

4.3 Site Security

4.3.1 The licensee shall provide and maintain two 2100mm high security fences along the front of the facility as detailed in Drawing No. 96-09933 .03., Revision R, "Layout of Stage 1 and Phase 4". The licensee shall provide and maintain a 2100mm high security fence around the remainder of the perimeter of the site as detailed in Drawing No. 96-09933 .05., Revision 1, "1:2500 Layout Plan Showing Fencing and Landscaping"

4.3.2 The licensee shall submit, within one month from the date of grant of this licence, to the Agency for its agreement a specification and location of the facility gates.

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

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

4.3.4 Gates shall be kept locked shut when the facility is unsupervised.

4.4 Site Roads

4.4.1 The licensee shall provide, locate and maintain access roads and hardstanding areas to the specification detailed in Drawing 96-09933 .12., Revision 2, "1:1000 Layout Plan Showing Hardstanding Surfaces".

4.5 The licensee shall provide and maintain an office on the facility, at the location shown in Drawing No. 96-09933 .03., Revision 9, "Layout of Stage 1 and Phase 4" and referred to therein as the Admin/Lab. The office shall be constructed and maintained in a manner suitable for the processing and storing of documentation.

4.6 The licensee shall provide and maintain a working telephone and facsimile machine in the office specified in Condition 4.5 above.

4.7 The hardstanding areas detailed in Drawing 96-09933 .12., Revision 2, "1:1000 Layout Plan Showing Hardstanding Surfaces" shall drain only to a sump and/or direct to the leachate lagoon.

- 4.8 The licensee shall provide a weighbridge at the location shown in Drawing 96-09933 .03., Revision R, "Layout of Stage 1 and Phase 4" and shall maintain it in such condition and calibrate it at such times as are necessary as to accurately measure the weight of all vehicles using it.
- 4.9 Wheelwash
- 4.9.1 Unless otherwise agreed in writing in advance with the Agency, the licensee shall provide and maintain wheelwash facilities, consisting of two components, at the locations shown on Drawing 96-09933 .03., Revision R, "Layout of Stage 1 and Phase 4". A dry wheel shake-out unit constructed to the specification shown in Drawing 96-09933 .18., Revision 1, "Dry Wheel Cleaning Unit, Weigh Bridge & Retention Pond Liner Detail" and a wheelwash unit located at the entrance to the Marshalling Yard.
- 4.9.2 The licensee shall submit, within two months from the date of grant of this licence, to the Agency for its agreement a drawing detailing the construction of the wheelwash unit.
- 4.9.3 The licensee shall inspect the wheelwash facilities on a daily basis and drain or empty them as required. Water drained from the wheelwash facilities shall be discharged to the leachate storage lagoon unless otherwise agreed in writing in advance with the Agency. Accumulated silt shall be removed and disposed of at the working face as required.
- 4.10 The licensee shall provide and maintain vehicle cleaning facilities at the location shown in Drawing No. 96-09933 .03., Revision R, "Layout of Stage 1 and Phase 4" and referred to therein as "Truck Wash". Water drained from the Truck Wash facilities shall be discharged to the leachate storage lagoon unless otherwise agreed in writing in advance with the Agency.
- 4.11 The licensee shall provide and use adequate lighting during the operation of the facility in hours of darkness.
- 4.12 The licensee shall provide and maintain a septic tank and percolation system at the facility unless otherwise agreed in advance in writing with the Agency.
- 4.13 Fuel Storage
- 4.13.1 Unless agreed otherwise in advance in writing with the Agency or unless contained in mobile plant at the facility, the licensee shall store all fuels at the location shown in Drawing No. 96-09933 .03., Revision R, "Layout of Stage 1 and Phase 4" and referred to therein as "Diesel Tank".
- 4.13.2 All tank and drum storage areas shall be rendered impervious to the materials stored therein. In addition, tank and drum storage areas shall, as a minimum be bunded, either locally or remotely, to a volume not less than 110% of the capacity of the largest tank or drum within the bunded area.
- 4.13.3 All drainage from bunded areas shall be diverted for collection and safe disposal.
- 4.13.4 All inlets, outlets, vent pipes, valves and gauges shall be within the bunded area.
- 4.13.5 The integrity and water tightness of all the bunds, tanks and containers and their resistance to penetration by water or other materials stored therein shall be tested and demonstrated by the licensee and shall be reported to the Agency within six months from the date of grant of this licence. This testing shall be carried out by the licensee at least once every three years thereafter and

reported to the Agency on each occasion. The licensee shall also submit to the Agency for its agreement in each case a written report on the storage of fuels on site. A written record of all integrity tests and any maintenance or remedial work arising from them shall be maintained by the licensee.

4.13.6 All tanks and containers shall be labelled to clearly indicate their contents.

4.14 Specified Engineering Works

4.14.1 The licensee shall submit a written report on any proposed specified engineering works, as defined in *Schedule F: Specified Engineering Works*, to the Agency for its agreement prior to any works being carried out. No such works shall be carried out without the prior written agreement of the Agency.

4.14.2 All specified engineering works shall be supervised by a competent person(s) agreed in writing in advance by the Agency and that person, or persons, shall be present at all times during which relevant works are being undertaken.

4.14.3 Following the completion of all specified engineering works, the licensee shall submit a construction quality assurance validation report to the Agency. The validation report shall include the following information

- a) a description of the works;
- b) as-built drawings of the works;
- c) records and results of all tests carried out (including failures);
- d) where relevant a drawing and sections showing the location of all samples and tests carried out;
- e) daily records sheets/diary;
- f) name(s) of contractor(s)/individual(s) responsible for undertaking the engineering works;
- g) name(s) of person(s) responsible for supervision of works and for quality assurance validation of works;
- h) records of any problems and the remedial works carried out; and
- i) any other information requested in writing by the Agency.

4.15 In the event that monitoring of local wells demonstrates that the facility is affecting the quantity and/or the quality of the water supply the licensee shall submit to the Agency for its agreement and within a time specified in writing by the Agency, written proposals for the provision of an alternative supply of water to those affected,

4.16 Landfill Gas Management:

4.16.1 Landfill gas generated at the site shall be vented to the atmosphere in accordance with the landfill gas scheme shown in Drawing No. 96-09933 14 Revision 0 "Gas Vents System" unless otherwise agreed in writing in advance with the Agency.

- 4.16.2 Within six months from the date of grant of this licence, the licensee shall submit written proposals for an active landfill gas control system, incorporating flaring, to the Agency for agreement and shall establish and maintain such a system as agreed in writing with the Agency.
- 4.16.3 Within twelve months from the date of grant of this licence, the licensee shall submit written proposals to the Agency for agreement for the utilisation of landfill gas at the facility.
- 4.16.4 The licensee shall maintain all gas venting wells, pipework, valves, pumps, flares and other infrastructure that form part of the landfill gas management and utilisation scheme in a safe and fully operational manner.
- 4.17 Leachate Management:
- 4.17.1 Leachate generated in Cells 1 to 4 inclusive, as shown on Drawing No. 96-09933 .03., Revision R, "Layout of Stage 1 and Phase 4", shall be collected and stored as shown on Drawing No. 96-09933 .13., Revision R1, "Layout of Leachate Collection System" unless otherwise agreed in writing in advance with the Agency. Such leachate shall be disposed of by tankering off-site in fully enclosed tankers and discharging to a receptor manhole at Watery Lane, Clondalkin, unless otherwise agreed in writing in advance with the Agency. The frequency of removal shall be such that a minimum freeboard of 0.3 m is maintained at all times in the leachate storage lagoon.
- 4.17.2 Leachate levels within the filled waste shall not exceed a level of 1.0 metre over the liner.
- 4.18 Capping:
- 4.18.1 Final capping of the facility shall be in accordance with the detail shown in Drawing No. 96-09933 43, Revision A, "1:2500 Layout Showing After Care".

Reason: To provide for the protection of the environment

CONDITION 5 WASTE ACCEPTANCE AND HANDLING

- 5.1 Baled Municipal Waste only shall be accepted at the facility.
- 5.2 No Hazardous Waste shall be accepted at the facility.
- 5.3 Only waste baled at Ballymount Baling Station shall be accepted at the facility unless prior written agreement is obtained from the Agency.
- 5.4 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.
- 5.5 Wastes shall be checked at the working face to ensure that it complies with the requirements of this licence. Any wastes deemed to be in contravention of this licence and/or unsuitable for disposal at this facility shall be removed for disposal at an appropriate alternative facility.
- 5.6 The quantity of wastes to be accepted at the facility shall not exceed 360,000 tonnes per annum, unless otherwise agreed in writing in advance with the Agency.
- 5.7 Waste shall not be deposited in any cell or part of the facility after the date of grant of this licence without the prior written agreement of the Agency.
- 5.8 Scavenging shall not be permitted at the facility.
- 5.9 Waste shall only be accepted at the facility between the hours of 08:30 and 18.00 Monday to Saturday inclusive unless subject to the prior written agreement of the Agency.
- 5.10 Within six months from the date of grant of this licence, the licensee shall submit for agreement to the Agency written procedures for the testing, characterisation and acceptance of waste.
- 5.11 Unless subject to the prior written agreement of the Agency only one working face shall exist at the facility at any one time for the deposit of baled waste. The licensee shall submit, within two months of the date of grant of this licence, a written proposal to the Agency for its agreement as to the size of the working face.
- 5.12 Unless subject to prior written agreement by the Agency, wastes once deposited and covered shall not be excavated, disturbed or otherwise picked over.
- 5.13 No smoking shall be allowed on the facility other than in the Admin/Lab Office as shown on Drawing No. 96-09933 .03., Revision 9, "Layout of Stage 1 and Phase 4"
- 5.14 Unless otherwise agreed in writing in advance with the Agency the following daily cover will be utilised on the facility to ensure that no waste is left exposed:
 - a) 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; and,
 - b) the vertical face of the waste will be entirely covered by tarpaulin sheeting after the end of the working day.

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

CONDITION 6 ENVIRONMENTAL NUISANCES

- 6.1 The licensee shall, at a minimum of one week intervals, inspect the facility and its immediate surrounds for nuisances caused by vermin and odours. Written records shall be made of all inspections and any actions taken as a result of these inspections.
- 6.2 The road network in the vicinity of the facility shall be kept free from any debris caused by vehicles entering or leaving the facility. Any such debris or deposited materials shall be removed without delay.
- 6.3 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.
- 6.4 In dry weather, site roads and any other areas used by vehicles shall be sprayed with water as and when required to minimise airborne dust nuisance.
- 6.5 All loose litter accumulated within the facility and its environs, excluding that which is deposited on the working face, shall be removed and appropriately disposed of on a daily basis.
- 6.6 Any waste placed on or in the vicinity of the facility, other than in accordance with the requirements of this licence, shall be removed by the licensee immediately, and in any event by 10:00am of the next working day, such waste is discovered. Such waste shall be disposed of at an alternative appropriate facility.
- 6.7 The licensee shall ensure that all vehicles delivering waste to the facility are fully enclosed.
- 6.8 The licensee shall ensure that the activities shall be carried out in a manner such that odours do not result in significant impairment of, or significant interference with amenities or the environment beyond the facility boundary.
- 6.9 The licensee shall ensure that vermin do not give rise to nuisance at the facility or the immediate environment of the facility. 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.
- 6.10 The licensee shall ensure that birds do not give rise to nuisance at the facility or the immediate environment of the facility. The licensee shall submit, within two months from the date of grant of this licence, in writing to the Agency for its agreement a bird control scheme.

Reason: To provide for the control of nuisances.

CONDITION 7 EMISSIONS AND ENVIRONMENTAL IMPACTS

- 7.1 No specified emission from the facility shall exceed the emission limit values set out in *Schedule G: Emissions* of this licence. There shall be no other emissions of environmental significance.
- 7.2 All treatment/abatement and emission control equipment shall be calibrated and maintained in accordance with the instructions issued by the manufacturer/supplier or installer. Written records of the calibrations and maintenance shall be made and kept by the licensee.
- 7.3 Emissions to surface water from the facility shall only be made to the Hartwell River at the location shown on Drawing No. 96-09933 01 Revision B, "1:2500 Layout Showing Final Contours, Storm Discharge Pipe and Monitoring Wells.
- 7.4 There shall be no direct emissions to groundwater.
- 7.5 The trigger value for indirect emissions to groundwater shall be that quantity arising from leakage through the intact liner systems as designed for the facility. Within two months of the date of grant of this licence, the licensee shall submit calculations determining that quantity to the Agency for agreement. Within six months from the date of grant of this licence, and annually thereafter, the licensee shall submit a written report to the Agency for agreement estimating the quantities of leakage to have already occurred since commencement of the activity and expected to occur in the next twelve months.
- 7.6 There shall be no clearly audible tonal component in the noise emissions from the activity at the facility boundary.
- 7.7 The following are the trigger levels for landfill gas emissions from the facility measured in any service on or immediately adjacent to the facility and/or at any other point located outside the body of the waste:
- a). Methane, greater than or equal to 1.0% v/v; and,
 - b). Carbon dioxide, greater than or equal to 1.5% v/v.

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

CONDITION 8 RESTORATION AND AFTERCARE

- 8.1 The final profile of the facility shall be as shown in Drawing No. 96-09933 01, Revision B, "1.2500 Layout Showing Final Contours Storm Discharge Pipe & Monitoring Wells".
- 8.2 Unless otherwise agreed in advance in writing with the Agency, the restoration and aftercare of the facility shall be carried out in accordance with the Restoration Scheme (Attachment G.1) and the Aftercare Management Scheme (Attachment G.2). The licensee shall update these Schemes when required in writing by the Agency and submit proposed amendments to the Agency for its agreement.
- 8.3 Completed areas of the landfill shall be profiled so that no depressions exist in which water may accumulate.
- 8.4 No material or object that is incompatible with the proposed restoration of the site shall be present within one metre of the final soil surface levels.

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

CONDITION 9 ENVIRONMENTAL MONITORING

- 9.1 The licensee shall carry out such monitoring and at such frequencies as set out in *Schedule E: Monitoring* and as specified by the conditions of this licence.
- 9.2 The licensee shall, within three months from the date of grant of this licence, establish and maintain a meteorological station at the location shown on Drawing No. 96-09933 .03. Revision R, "Layout of Stage 1 and Phase 4", to carry out the monitoring required under *Schedule E.7 Meteorological Monitoring*.
- 9.3 The boreholes shown on Drawing No. 96-09933 1/1, "Location of Gas Monitoring Boreholes" shall be monitored for landfill gas.
- 9.4 Within three months from the date of grant of this licence, the licensee shall submit to the Agency for its agreement a numbering system for the gas vents shown on Drawing No. 96-09933 Revision 10, "Gas Vents System", providing a unique number and twelve-figure National Grid Reference for each vent.
- 9.5 Within three months from the date of grant of this licence, the licensee shall submit details of the permanent gas monitoring system to be installed in the site offices to the Agency for its agreement.
- 9.6 All landfill gas monitoring equipment used for monitoring landfill gas under the requirements of this licence shall be certified as being intrinsically safe.
- 9.7 Surface water monitoring shall be carried out at the locations marked SW1, SW2, and SW3 as shown on Drawing No. 96-09933 01, Revision B, "1:2500 Layout Showing Final Contours, Storm Discharge Pipe & Monitoring Wells".
- 9.8 The licensee shall, within three months of the date of grant of this licence, submit to the Agency for its agreement monitoring proposals for the biological assessment of the Hartwell River immediately upstream and downstream of the surface water discharge point from the facility.
- 9.9 Within three months from the date of grant of this licence, the licensee shall submit to the Agency for its agreement twelve figure National Grid References for the three surface water monitoring points numbered SW1, SW2 and SW3 and shown on Drawing No. 96-09933 01, Revision B, "1:2500 Layout Showing Final Contours, Storm Discharge Pipe & Monitoring Wells".
- 9.10 Ionic balances shall be carried out on groundwater and surface water monitoring results except for those samples collected at SW2 for weekly analysis.
- 9.11 Within one month from the date of grant of this licence, the licensee shall submit a written proposal to the Agency for its agreement specifying a monitoring programme for both the surface water emission flow and the flow in the Hartwell River. The report shall include a drawing showing the location of both monitoring points, each identified by a unique number and a twelve figure grid reference.
- 9.12 Within one month from the date of grant of this licence, the licensee shall submit to the Agency for its agreement, a proposal for a monitoring programme for private wells within 500m of the facility, a drawing showing the location of all groundwater monitoring boreholes, each identified by a unique number, and a report listing the boreholes, providing twelve figure grid references for each, the horizon monitored by each and any previous number ascribed to each borehole. The boreholes to be monitored for

groundwater shall, at a minimum, comply with the proposal submitted by the licensee to the Planning Authority in compliance with the planning permission.

- 9.13 Within three months from the date of grant of this licence, the licensee shall submit a written proposal on monitoring of leachate levels to the Agency for its agreement. The report shall include procedures for monitoring leachate levels within the filled waste to fulfil the requirements of *Schedule E.6, Leachate Monitoring* together with a drawing showing all leachate monitoring locations,. The drawing shall also contain a unique reference number and the twelve figure grid reference number given for each monitoring point.
- 9.14 The licensee shall provide safe and permanent access to all on-site sampling and monitoring points and off-site points as required by the Agency.
- 9.15 Monitoring and analytical equipment shall be operated and maintained in accordance with the manufacturers instructions (if any) so that all monitoring results accurately reflect any emission or discharge or other environmental parameter.
- 9.16 The licensee shall amend the frequency, locations, methods and scope of monitoring, sampling, analyses and investigations only upon the written instruction of the Agency and shall provide such information concerning such amendments as may be requested in writing by the Agency. Such alterations shall be carried out within any timescale nominated by the Agency.
- 9.17 The licensee may apply in writing to the Agency to amend the frequency, locations, methods and scope of monitoring, sampling and analyses. Proposed amendments shall be carried out only in the event of the prior written agreement of the Agency.
- 9.18 Unless otherwise agreed in writing with the Agency, a written record shall be kept of the names, position, qualifications and a summary of relevant experience of all persons who carry out any sampling and monitoring as required by this licence and who provide the interpretation of the results of such sampling and monitoring.
- 9.19 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.
- 9.20 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.
- 9.21 The licensee shall maintain all sampling and monitoring points so that they may be used for the representative sampling and monitoring of emissions from the facility.
- 9.22 A site survey and void space survey shall be carried out within twelve months from the date of grant of this licence. It shall be repeated annually thereafter. The survey shall be in accordance with any written instructions issued by the Agency.
- 9.23 A copy of all monitoring results and interpretations shall be available at the facility for examination by any interested party.

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

CONDITION 10 CONTINGENCY ARRANGEMENTS

- 10.1 The licensee shall, within six months from the date of grant of this licence, submit a written Emergency Response Procedure (ERP) to the Agency for its agreement. The ERP shall address any emergency situation which may originate on the facility and shall include provision for minimising the effects of any emergency on the environment.
- 10.2 The licensee shall have in storage an adequate supply of containment booms and suitable absorbent material to contain and absorb any spillage at the facility. Once used the absorbent material shall be disposed of at an appropriate facility.
- 10.3 All significant spillages, including all spillages of greater than 100 litres, other than water, occurring at the facility shall be treated as an emergency and immediately cleaned up and dealt with so as to alleviate their effects.
- 10.4 No waste shall be burnt within the boundaries of the facility. A fire at the facility shall be treated as an emergency. Immediate action shall be taken to extinguish it and the appropriate authorities notified.
- 10.5 The licensee shall carry out a risk assessment to determine the requirements at the facility for fire fighting and fire water retention facilities and, within six months from the date of grant of this licence, submit a report, including recommendations, on the risk assessment to the Agency for its agreement. This assessment shall include an examination of the existing arrangements for storage of fire water and an investigation into the feasibility of automatic diversion of surface water to a retention facility. The Chief Fire Officer of Kildare County Council shall be consulted by the licensee during this assessment.
- 10.6 In the event that any monitoring, sampling or observations indicate that an incident has, or may have, taken place, the licensee shall immediately:
- a) identify the date, time and place of the incident;
 - b) carry out an immediate investigation to identify the nature, source and cause of the incident and any emission;
 - c) isolate the source of the emission;
 - d) evaluate the environmental pollution, if any, caused by the incident;
 - e) identify and execute measures to minimise the emissions/malfunction and the effects thereof;
 - f) identify and put in place measures to avoid recurrence of the incident; and,
 - g) identify and put in place any other appropriate remedial action.

Reason: To provide for the protection of the environment.

CONDITION 11 CHARGES AND FINANCIAL PROVISIONS

11.1 Agency Charges

- 11.1.1 The licensee shall pay to the Agency an annual contribution of £15,245 or such sum as the Agency from time to time determines, towards the cost of monitoring the activity or otherwise in performing any functions in relation to the activity, as the Agency considers necessary for the performance of its functions under the Waste Management Act, 1996. The licensee shall in 1999 and subsequent years, not later than January 31 of each year, pay to the Agency this amount updated in accordance with changes in the Consumer Price Index from the date of the grant of the licence to the renewal date. The updated amount shall be notified to the licensee by the Agency. For 1998, the licensee shall pay a pro rata amount from the date of grant of this licence to December 31 1998. This amount shall be paid to the Agency within one month from the date of grant of this licence.
- 11.1.2 In the event that the frequency or extent of monitoring or other functions carried out by the Agency needs to be increased due to an incident occurring on or adjacent to the facility and associated with the facility, the licensee shall contribute such sums as determined by the Agency to defraying its costs.

11.2 Financial Provision for Closure, Restoration and Aftercare

- 11.2.1 The licensee shall from a date to be set in writing by the Agency establish and maintain a fund, or other form of approved security or guarantee, that is adequate to assure the Agency that the licensee is at all times financially capable of complying with the Restoration and Aftercare Plan required by Condition 8.1. The type of fund and means of its release/recovery shall be submitted in writing to the Agency for its agreement prior to establishment.
- 11.2.2 The fund shall be maintained in an amount always sufficient to underwrite the current Restoration and Aftercare Plan.
- 11.2.3 The licensee shall revise the cost of aftercare and restoration annually and any details of the necessary adjustments to the above fund must, within two weeks of the revision, be forwarded to the Agency for agreement and put into effect within four weeks of the Agency's written agreement.
- 11.2.4 Unless otherwise agreed any revision to the fund shall be computed using the following formula:

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

Where:

Cost = Revised 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 facility conditions, changes in law, regulations, regulatory authority charges, or other significant changes.

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

SCHEDULE A Waste Activities

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

WASTE MANAGEMENT ACT, 1996: THIRD SCHEDULE <small>Note 1</small>	
Class 1.	<p>Deposit on, in or under land, (including landfill):</p> <p>This activity is limited to the landfilling 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 leachate storage and treatment tanks and the storage of surface 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 disposal 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 subject to prior written approval of the Agency.</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 (including evaporation, drying and calcination):</p> <p>This activity is limited to the physico-chemical treatment of leachate arising from the waste disposed of on site subject to prior written approval of the Agency.</p>

Note 1: Any reference to a Class is to be taken as being a class in the Third Schedule of the Waste Management Act, 1996.



SCHEDULE B 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 during the reporting period.

Total accumulated quantities of waste deposited.

Calculated remaining capacity of the site.

Year in which final capacity is expected to be reached.

Area occupied by waste.

Methods of deposition of waste.

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

Summary of results and interpretations of environmental monitoring.

Resource and energy consumption summary.

Proposed future development of the site and timescale of such development.

Volume of leachate produced and volume of leachate transported/discharged off-site.

Report on development works undertaken during the reporting period.

Progress on restoration of completed cells/ phases.

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

Estimated annual and cumulative quantity of landfill gas emitted from the site.

Estimated annual and cumulative quantity of indirect emissions to groundwater

Monthly water balance calculation and interpretation.

Meteorological Report

Environmental Management Programme - Proposal

Environmental Management Programme - Report

Mass Balance of Specified Substances - Proposal

Mass Balance of Specified Substances - Report.

Schedule of Environmental Objectives and Targets for the Forthcoming Year.

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

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

Tank, pipeline, bund testing and inspection report.

Reported incidents summary.

Complaints summary.

Report on financial provision made under this licence.

Report on management and staffing structure of the facility.

Report on programme for public information.

SCHEDULE C Content of the Environmental Management Programme

Environmental Management Programme

Items Specified to be contained in an Environmental Management Plan in the 'Landfill Operational Practices Manual' published by the Agency or otherwise agreed in writing with the Agency.

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

Designation of Responsibility for Achieving Targets and Objectives

Emergency Procedures

Schedule of Drawings



SCHEDULE D Recording and Reporting to the Agency

Table D(i) Recurring Reports

Report	Reporting Frequency ^{Note 1}	Report Submission Date
Environmental Management System Updates	Annually	One month after the end of the year reported on.
Mass Balance of Specified Substances	Annually	To be agreed in writing with the Agency
Annual Environment Report (AER)	Annually	Eighteen months from the date of grant of licence and one month after the end of each year thereafter.
Record of Incidents	As they occur	Within three days of the incident.
Cessation/Re-activation of an activity in accordance with Condition 3.9	As they arise	Fourteen days in advance of cessation/re-activation
Specified Engineering Works reports	As they arise	Prior to the works commencing.
Bund, tank and container integrity assessment	Every three years	Six months from the date of grant of licence and one month after end of the three year being reported on.
Site and Void Survey	Annually	One month after end of the year being reported on.
Indirect discharges to groundwater	Annually	Six months from the date of grant of licence and one month after the end of each year being reported on.
Monitoring of landfill gas	Quarterly	Ten days after end of the quarter being reported on.
Dust Monitoring	Annually	One month after end of the year being reported on.
Noise Monitoring	Annually	One month after end of the year 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 Volumes	Quarterly	Ten days after end of the quarter being reported on.
Monitoring of Leachate levels and Composition	Quarterly	Ten days after end of the quarter being reported on.
Meteorological Monitoring	Annually	One month after end of the year being reported on.

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



Table D(ii) Once-off Reports

Report	Report Submission Date
Environmental Management System	Within eighteen months from the date of grant of licence
Schedule of Environmental Objectives and Targets	Within four months from the date of grant of this licence.
Environmental Management Programme	Within nine months from the date of grant of licence.
Management and manning levels	Within three months from the date of grant of licence.
Communications Programme.	Within three months from the date of grant of licence.
Details of facility gates and entrance	Within three months from the date of grant of licence
Details of facility wheelwash	Within three months from the date of grant of licence
Landfill gas management incorporating flaring	Within six months from the date of grant of licence.
Landfill gas utilisation proposals	Within twelve months from the date of grant of licence.
Procedures for testing, characterisation and acceptance of waste	Within six months from the date of grant of licence.
Bird Control Scheme	Within three months from the date of grant of licence.
Numbering system for landfill gas passive vents	Within three months from the date of grant of this licence
Details of the permanent landfill gas monitoring system	Within three months from the date of grant of this licence
Grid references for the surface water monitoring points	Within three months from the date of grant of this licence
Surface water and discharge flow monitoring report.	Within three months from the date of grant of this licence
Report on the location and numbering of groundwater monitoring points	Within three months from the date of grant of this licence
Leachate monitoring	Within three months from the date of grant of licence.
Emergency Response Procedure	Within six months from the date of grant of licence.
Restoration and Aftercare Plan	Within twelve months from the date of grant of licence.
Risk Assessment, Fire Fighting and Fire-water retention study.	Within six months from the date of grant of licence.



SCHEDULE E Monitoring

All monitoring frequencies and programmes listed in this Schedule are subject to alteration under Condition 9 or as a result of an incident.

E.1 Landfill Gas

The frequency, locations and method of sampling and analysis are listed in the following table:

Table E.1 Landfill Gas Monitoring

Parameter	Monitoring Frequency		Analysis Method/Technique
	Perimeter Boreholes/Gas Vents/Wells within the waste	Site Offices	
Methane (CH₄)%v/v	Monthly	Weekly	Infrared analyser/flame ionisation detector
Carbon dioxide (CO₂) %v/v	Monthly	Weekly	Infrared analyser/flame ionisation detector
Oxygen(O₂) %v/v	Monthly	Weekly	Infrared analyser
Atmospheric Pressure	Monthly	Weekly	Standard
Temperature	Monthly	Weekly	Standard



E.2 Dust

Dust Monitoring Point Reference Numbers: (Drawing No. 96-09933 .49., Revision A, "1:2500 Layout Plan Showing Dust and Noise Monitoring Locations).

Table E.2.1 Dust Monitoring Locations

STATION	EASTING	NORTHING
D1	295895	221688
D2	296169	221702
D3	296448	221146
D4	295927	221180
D5	295648	221398

The frequency and method of sampling and analysis are listed in the following table:

Table E.2.2 Dust Monitoring

Parameter (mg/m ³ /day)	Monitoring Frequency	Analysis Method/Technique
Dust	Annual ^{Note 2}	Standard Method ^{Note 1}

Note 1: "Standard Method VDI2119 (Measurement of Dustfall, Determination of Dustfall using the Bergerhoff Instrument(Standard Method) - German Engineering Institute)

Note 2: During the period May to September, or as otherwise specified in writing by the Agency



E.3: Noise

Noise Monitoring Point Reference Numbers: (Drawing No. 96-09933 .49., Revision A, "1:2500 Layout Plan Showing Dust and Noise Monitoring Locations).

Table E.3.1 Noise Monitoring Locations

STATION	EASTING	NORTHING
N1- Western Boundary	295619	221702
N2- Nearest Residence	295922	221730
N3- Northern Boundary	296169	221702
N4- Southern Boundary	296448	221146
N5- South-West Boundary	295927	221180
N6- Western Boundary	295648	221398

The frequency and method of sampling and analysis are listed in the following table:

Table E.3.2 Noise Monitoring

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

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



E.4 Surface Water (SW1, SW2 and SW3)

The frequency and method of sampling and analysis are listed in the following table:

Table E.4.2 Surface Water Monitoring

Parameter	Monitoring Frequency	Analysis Method/Technique
Visual Inspection	Weekly	Not applicable
Ammoniacal Nitrogen	Quarterly ^{Note 1}	ISE / Colorimetry
BOD	Quarterly	Electrometry / Titrimetry with nitrification inhibitor
COD	Quarterly	Digestion + Colorimetry/Titrimetry
Chloride	Quarterly	Colorimetry / Ion Chromatography
Dissolved Oxygen	Quarterly	Electrometry
Electrical Conductivity	Quarterly ^{Note 1}	Electrometry
pH	Quarterly ^{Note 1}	Electrometry
Total Suspended Solids	Quarterly ^{Note 1}	Gravimetry
Temperature	Quarterly ^{Note 1}	Thermometry
Cadmium	Quarterly ^{Note 1}	Atomic Spectroscopy / Colorimetry / Electrometry
Calcium	Quarterly	Atomic Spectroscopy / Ion Chromatography / Colorimetry
Chromium (Total)	Quarterly	Atomic Spectroscopy / Colorimetry / Electrometry
Copper	Quarterly	Atomic Spectroscopy / Colorimetry / Electrometry
Iron	Quarterly	Atomic Spectroscopy / Colorimetry / Electrometry
Lead	Quarterly ^{Note 1}	Atomic Spectroscopy / Colorimetry / Electrometry
List I/II organic substances	Quarterly	GC/MS or appropriate techniques
Magnesium	Quarterly	Atomic Spectroscopy / Ion Chromatography / Colorimetry
Manganese	Quarterly ^{Note 1}	Atomic Spectroscopy / Colorimetry / Electrometry
Mercury	Quarterly	Atomic Spectroscopy / Electrometry
Nickel	Quarterly	Atomic Spectroscopy / Electrometry
Potassium	Quarterly	Atomic Spectroscopy / Ion Chromatography / Colorimetry
Sulphate	Quarterly	Turbidimetric / Ion Chromatography
Sodium	Quarterly	Atomic Spectroscopy / Ion Chromatography / Colorimetry
Faecal coliforms (/100mls)	Quarterly	Membrane Filtration or MPN using referenced procedures
Total coliforms (/100mls)	Quarterly	Membrane Filtration or MPN using referenced procedures
Total Alkalinity	Quarterly	Colorimetry/Titrimetry
Total Phosphorus or orthophosphate	Quarterly	Digestion / Colorimetry
Total Oxidised Nitrogen	Quarterly	Colorimetry / Ion Chromatography
Total Organic Carbon	Quarterly	TOC Analyser (UV Persulphate / Thermal Oxidation)
Zinc	Quarterly	Atomic Spectroscopy / Colorimetry / Electrometry

Note 1:SW2 shall be monitored on a weekly basis for these parameters.

E.5 Groundwater

The frequency and method of sampling and analysis are listed in the following table:

Table E.5 Groundwater Monitoring

Parameter	Monitoring Frequency	Analysis Method/Technique
Groundwater levels	Monthly	Water Level Probe (Dipper Tape)
Ammoniacal Nitrogen	Quarterly	ISE / Colorimetry
Chloride	Quarterly	Colorimetry / Ion Chromatography
Electrical Conductivity	Quarterly	Electrometry
Odour / Visual Inspection	Quarterly	Not applicable
pH	Quarterly	Electrometry
Potassium	Quarterly	Atomic Spectroscopy / Ion Chromatography / Colorimetry
Sodium	Quarterly	Atomic Spectroscopy / Ion Chromatography/ Colorimetry
Temperature	Quarterly	Themometry
Total Oxidised Nitrogen	Quarterly	Colorimetry / Ion Chromatography
Total Organic Carbon	Quarterly	TOC Analyser (UV Persulphate / Thermal Oxidation)
Boron	Annually	Atomic Spectroscopy / Colorimetry / Electrochemical
Calcium	Annually	Atomic Spectroscopy / Ion Chromatography/ Colorimetry
Cadmium	Annually	Atomic Spectroscopy / Colorimetry / Electrochemical
Chromium (Total)	Annually	Atomic Spectroscopy / Colorimetry / Electrochemical
Copper	Annually	Atomic Spectroscopy / Colorimetry / Electrochemical
Cyanide (Total)	Annually	Colorimetry / Ion Chromatography / ISE
Fluoride	Annually	Ion Chromatography / ISE
Iron	Annually	Atomic Spectroscopy / Colorimetry / Electrochemical
Lead	Annually	Atomic Spectroscopy / Colorimetry / Electrochemical
List I/II organic substances	Annually	GC/MS or other appropriate techniques
Magnesium	Annually	Atomic Spectroscopy / Ion Chromatography / Colorimetry
Manganese	Annually	Atomic Spectroscopy / Colorimetry / Electrochemical
Mercury	Annually	Atomic Spectroscopy / Electrochemical
Nickel	Annually	Atomic Spectroscopy / Electrochemical
Residue on evaporation	Annually	Dessication at 180°C and Gravimetric
Sulphate	Annually	Turbidimetric / Ion Chromatography / Colorimetry
Total Alkalinity	Annually	Colorimetry/Titrimetry
Total Phosphorus or Orthophosphate	Annually	Digestion / Colorimetry
Zinc	Annually	Atomic Spectroscopy / Colorimetry / Electrochemical
Faecal Coliforms	Annually	Membrane Filtration or MPN using referenced procedures
Total Coliforms	Annually	Membrane Filtration or MPN using referenced procedures

E.6 Leachate**Table E.6.1 Leachate Monitoring Locations and Frequency**

Monitoring Medium	Parameters	Frequency		Monitoring Points
		Operational	Aftercare	
Leachate in Cells	Leachate levels in each cell, collection sump	Weekly	Monthly	Monitoring in each cell at leachate collection point; collection sump
	Leachate composition analysis as per Table E.6.2	As per Table E.6.2	At half the frequency specified in Table E6.2 with a minimum of once per annum	Monitoring at leachate collection point. [Specific location to be identified and agreed by the Agency]
Leachate Detection Manholes (LDMH)	Leachate Level	Weekly	Monthly	Specific location to be identified and agreed with the Agency
	Leachate composition analysis as per Table E.6.2	As per Table E.6.2	At half the frequency specified in Table E.6.2 with a minimum of once per annum	Specific location to be identified and agreed with the Agency
Leachate lagoon	Leachate Level in Lagoons Leachate discharge volume	Weekly Monthly/ (as dictated by transport of leachate off-site)	Monthly Monthly	Specific locations to be identified and agreed with the Agency
	Leachate composition analysis as per Table E.6.2	As per Table E.6.2	Bi-annually	



The frequency and method of sampling and analysis are listed in the following table:

Table E.6.2 : Leachate Monitoring

Parameter	Monitoring Frequency	Analysis Method/Technique
Ammoniacal Nitrogen	Quarterly ^(note 1)(	ISE / Colorimetry
BOD	Quarterly ^(note 1)(	Electrometry / Titrimetry with nitrification inhibitor
COD	Quarterly ^(note 1)(	Digestion=Colorimetry / Titrimetry
Calcium	Quarterly ^(note 1)(	Atomic spectroscopy / Ion Chromatography
Chloride	Quarterly ^(note 1)(	Colorimetry / Ion Chromatography
Electrical Conductivity	Quarterly ^(note 1)(	Electrometry
Iron	Quarterly ^(note 1)(	Atomic Spectroscopy / Colorimetry
Odour / Visual Inspection	Quarterly ^(note 1)(	Not applicable
pH	Quarterly ^(note 1)(	Electrometry
Potassium	Quarterly ^(note 1)(	Atomic Spectroscopy / Ion Chromatography/ Colorimetry
Sodium	Quarterly ^(note 1)(	Atomic Spectroscopy / Ion Chromatography/ Colorimetry
Temperature	Quarterly ^(note 1)(	Thermometry
Total Oxidised Nitrogen	Quarterly ^(note 1)(	Colorimetry / Ion Chromatography
Total Organic Carbon	Quarterly ^(note 1)(	TOC Analyser (UV persulphate / thermal oxidation)
Total Suspended Solids	Quarterly ^(note 1)(	Gravimetry
Boron	Annually	Atomic Spectroscopy / Colorimetry
Cadmium	Annually	Atomic Spectroscopy / Colorimetry
Chromium (Total)	Annually	Atomic Spectroscopy / Colorimetry
Copper	Annually	Atomic Spectroscopy / Colorimetry
Fluoride	Annually	Ion Chromatography / ISE
Lead	Annually	Atomic Spectroscopy / Colorimetry
List I/II organic substances	Annually	GC/MS or other appropriate techniques
Magnesium	Annually	Atomic Spectroscopy / Ion Chromatography/ Colorimetry
Manganese	Annually	Atomic Spectroscopy / Colorimetry
Mercury	Annually	Atomic Spectroscopy / Electrochemical
Nickel	Annually	Atomic Spectroscopy / Electrochemical
Sulphate	Annually	Ion Chromatography / Turbidimetric / Colorimetry
Total Alkalinity	Annually	Colorimetry/Titrimetry
Total Phosphorous or Orthophosphate	Annually	Digestion / Colorimetry
Zinc	Annually	Atomic Spectroscopy or Colorimetry

Note 1: For leachates in closed cells monitoring frequency for each parameter shall be bi-annually.

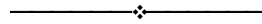


E.7 Meteorological Monitoring

The frequency and method of sampling and analysis are listed in the following table:

Table E.7 Meteorological Monitoring

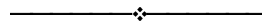
Parameter	Monitoring Frequency	Analysis Method/Technique
Precipitation Volume	Daily	Standard
Temperature(min/max)	Daily	Standard
Wind Force and Direction	Daily	Standard
Evaporation	Daily	Standard
Humidity	Daily	Standard
Atmospheric Pressure	Daily	Standard



SCHEDULE F Specified Engineering Works

Table F.1 Specified Engineering Works

Specified Engineering Works
Development of future Stages, Phases and Cells of the facility including preparatory works.
Liner and landfill cap, including temporary and intermediate capping, installation and all other containment works (including any containment works relating to leachate control).
Installation of landfill gas management, utilisation and monitoring systems.
Installation of leachate collection, detection, storage, recirculation, treatment, monitoring and control systems.
Installation of groundwater control and/or monitoring systems.
Surface water management works.
Installation of bunded fuel storage areas.
Restoration Works.
Any other works notified in writing by the Agency.



SCHEDULE G Emission Limits

G.1 Noise Emissions: (Measured at the noise monitoring points indicated on Drawing No. 96-09933 .49., Revision A, “1:2500 Layout Plan Showing Dust and Noise Monitoring Locations).

Table G.1 Noise Emission Limits

Day dB(A) L_{Aeq} (15 minutes)	Night dB(A) L_{Aeq} (15 minutes)
55	45

G.2 Dust Emissions: (Measured at the dust monitoring points indicated on Drawing No. 96-09933 .49., Revision A, “1:2500 Layout Plan Showing Dust and Noise Monitoring Locations).

Table G.2 Dust Emission Limits

Level (mg/m ² /day) ^{Note 1}
240

Note 1: Averaged over 30 days.

G.3 Landfill Gas Emissions (Measured in any building on or adjacent to the facility)

Table G.3 Landfill Gas Emission Limits

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

G.4 Surface Water Emissions (Measured at SW2 as shown on Drawing No. 96-09933 01, Revision B, “1:2500 Layout Showing Final Contours, Storm Discharge Pipe & Monitoring Wells”).

Table G.4 Surface Water Emission Limits

Flow
1,000l/s

Signed on behalf of the said Agency:

P. Nolan Authorised Person

on the 8th day of October, 1998