



ENVIRONMENT  
AGENCY

# Variation Notice with introductory note

Pollution Prevention and Control (England & Wales) Regulations 2000

---

Brookhill Landfill Site  
A D Waste Limited  
Brookhill Way  
Pinfold Industrial Estate  
Buckley  
Flintshire  
CH7 3PL

Variation Notice Number

**YP3835MJ**

Permit number

**BV7273**

# **Brookhill Landfill Site**

## **Permit Number BV7273**

### **Introductory note**

#### ***This introductory note does not form a part of the Permit***

The following notice is issued under regulation 17 of The Pollution Prevention and Control (England and Wales) Regulations 2000 (S.I.2000 No. 1973 (as amended) (the Regulations) to vary the conditions of a permit issued under the Regulations to operate an installation. The notice comprises schedule 1 containing conditions to be deleted, schedule 2 containing conditions to be amended and schedule 3 containing conditions to be added.

The permit conditions and schedules have been deleted and replaced with the conditions and schedules in line with the revised landfill template issued February 2007.

The main features of the installation are as follows:

Brookhill landfill is located near Buckley, North Wales. It has operated under the auspices of Waste Management Licence EAWML37207 which was granted by the Environment Agency in 1997. The landfill receives around 120,000 tonnes waste per annum. The application was originally for an interim hazardous waste landfill until the 16<sup>th</sup> July 2004 and thereafter non-hazardous landfill. The permit was issued as a non-hazardous landfill only as the date passed prior to issue of the permit. Landfill tipping is expected to be completed in 2007.

The site occupies an area of approximately 5 hectares. It was initiated in the 19<sup>th</sup> century when it was a clay pit forming part of the Brookhill Brickworks. From the late 1980s the pit was reworked for stone and limited opencast coal extraction.

The landfill is divided into six cells, with operations having commenced in all cells. All six cells were developed on the basis of containment of leachate by basal and side slope engineering comprising engineered clay. Cell 1 also included a HDPE membrane. A membrane was not included in the other cells as the hydrogeological model for the site considered Cells 2-6 to have a degree of hydraulic containment with groundwater levels at a higher elevation than leachate levels. With respect to Cell 1 indications of groundwater levels suggested that they were between 1-4m below the base of the cell. Leachate levels are required to be maintained below a maximum level of 2m depth through abstraction and subsequent treatment on-site. Landfill gas is abstracted and burnt through a flare. The flare will be replaced during 2007 with a gas engine for the production electricity.

| Status Log of the Permit                                                                       |                     |               |
|------------------------------------------------------------------------------------------------|---------------------|---------------|
| Detail                                                                                         | Date                | Response Date |
| Application BV7273                                                                             | Received 08/10/2003 |               |
| Response to request for information                                                            | 17/10/2003 (email)  | 20/10/2003    |
| Response to request for information                                                            | 17/10/2003 (letter) | 21/10/2003    |
| Response to request for information                                                            | 27/02/2004          | 25/03/2004    |
| Revised drawing ESID2                                                                          | 06/02/2004          | 17/06/2004    |
| Revised drawing ESID11                                                                         | 13/07/2004          | 13/07/2004    |
| Permit BV7273 determined                                                                       | 17/08/2004          |               |
| Compliance with Improvement Condition<br>– replacement of groundwater boreholes<br>GW2 and GW3 |                     | 31/05/2005    |
| Compliance with Improvement condition<br>– location of gas flare                               |                     | 06/03/2006    |
| Permit varied YP3835MJ                                                                         | 07/03/2007          |               |

| Superseded or Partially Superseded Licences/Authorisations/Consents relating to this installation |                  |               |                               |
|---------------------------------------------------------------------------------------------------|------------------|---------------|-------------------------------|
| Holder                                                                                            | Reference Number | Date of Issue | Fully or Partially Superseded |
| AD Waste Limited                                                                                  | EAWML/37207      | 07/09/1997    | Fully                         |

| Other existing Licences/Authorisations/Registrations relating to this site |                  |               |
|----------------------------------------------------------------------------|------------------|---------------|
| Holder                                                                     | Reference Number | Date of issue |
| None                                                                       |                  |               |

End of Introductory Note

## Variation Notice

Pollution Prevention and Control  
(England and Wales) Regulations 2000

## Variation Notice

Permit number

**BV7273**

Variation number

**YP3835MJ**

The Environment Agency (the Agency) in exercise of its powers under Regulation 17 of the Pollution Prevention and Control (England and Wales) Regulations 2000 (SI 2000 No 1973) hereby varies the permit held by you

**A D Waste Limited** ("the Operator"),

whose registered office is

**5/7 Grosvenor Court**

**Foregate Street**

**Chester**

**Cheshire**

**CH1 1HG**

company registration number **2630477** to operate an installation at

**Brookhill Landfill Site**

**Brookhill Way**

**Pinfold Industrial Estate**

**Buckley**

**Flintshire**

**CH37 3PL**

to the extent set out in schedules 1, 2 and 3 of this variation notice.

The notice shall take effect from 8<sup>th</sup> March 2007 at 00.01 hours.

Signed

Date

|                                                                                     |                            |
|-------------------------------------------------------------------------------------|----------------------------|
|  | 7 <sup>th</sup> March 2007 |
|-------------------------------------------------------------------------------------|----------------------------|

**Martin Jenkins** – SPG Permitting Team Leader

Authorised to sign on behalf of the Agency

#### **SCHEDULE 1 – CONDITIONS TO BE DELETED**

All conditions and schedules of permit number BV7273 are deleted.

#### **SCHEDULE 2 – CONDITIONS TO BE AMENDED**

None.

#### **SCHEDULE 3 – CONDITIONS TO BE ADDED**

All the following permit conditions and schedules are added to the permit.

## **Conditions**

### **1. Management**

#### **1.1 General management**

- 1.1.1 The activities shall be managed and operated:
- (a) in accordance with a management system, which identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents and non-conformances and those drawn to the attention of the operator as a result of complaints; and
  - (b) by sufficient persons who are competent in respect of the responsibilities to be undertaken by them in connection with the operation of the activities.
- 1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.
- 1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

#### **1.2 Accidents that may cause pollution**

- 1.2.1 The operator shall:
- (a) maintain and implement an accident management plan;
  - (b) review and record at least every 4 years or as soon as practicable after an accident, (whichever is the earlier) whether changes to the plan should be made;
  - (c) make any appropriate changes to the plan identified by a review.

#### **1.3 Finance**

- 1.3.1 The financial provision for meeting the obligations under this permit set out in the agreement made between the operator and the Agency dated 17/08/2004 shall be maintained by the operator throughout the subsistence of this permit and the operator shall produce evidence of such provision whenever required by the Agency.

- 1.3.2 The operator shall ensure that the charges it makes for the disposal of waste in the landfill cover the cost of operating the landfill, as far as possible the cost of the financial provision required by condition 1.3.1 and the estimated costs for the closure and aftercare of the landfill.

## **1.4 Energy efficiency**

- 1.4.1 The operator shall:
- (a) Review and record at least every 4 years whether there are suitable opportunities to improve the energy efficiency of the activities; and
  - (b) Implement any appropriate measures identified by a review.

## **1.5 Site security**

- 1.5.1 Site security measures shall prevent unauthorised access to the site, as far as practicable.

# **2. Operations**

## **2.1 Permitted activities**

- 2.1.1 The operator is authorised to carry out the activities specified in schedule 1 table S1.1 (the “activities”).

## **2.2 The site**

- 2.2.1 The activities shall not extend beyond the site, being the land shown edged in red on the site plan at schedule 2 to this permit.

## **2.3 Operating techniques**

- 2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1 table S1.2, unless otherwise agreed in writing by the Agency.

## **2.4 Off-site conditions**

There are no conditions in this permit to which regulation 12(12) of the PPC Regulations apply.

## **2.5 Improvement programme**

- 2.5.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Agency.
- 2.5.2 Except in the case of an improvement which consists only of a submission to the Agency, the operator shall notify the Agency within 14 days of completion of each improvement.

## **2.6 Pre-operational conditions**

There are no pre-operational conditions in this permit.

## **2.7 Engineering**

- 2.7.1 No construction of any new cell shall commence until the operator has submitted construction proposals and the Agency has confirmed that it is satisfied with the construction proposals.
- 2.7.2 The construction of a new cell shall take place only in accordance with the approved construction proposals unless:
  - (a) any change to the approved construction proposals would have no impact on the performance of any element of the design; or
  - (b) a change has otherwise been agreed in writing by the Agency.
- 2.7.3 No disposal of waste shall take place in a new cell until the operator has submitted a CQA Validation Report and the Agency has confirmed that it is satisfied with the CQA Validation Report.
- 2.7.4 No construction of landfill infrastructure shall commence until the operator has submitted relevant construction proposals or a written request to use previous construction proposals and the Agency has confirmed that it is satisfied with the construction proposals.
- 2.7.5 The construction of the landfill infrastructure shall take place only in accordance with the approved construction proposals unless:
  - (a) any change to the approved construction proposals would have no impact on the performance of any element of the design; or
  - (b) a change has otherwise been agreed in writing by the Agency.
- 2.7.6 The operator shall submit a CQA Validation Report as soon as practicable following the construction of the relevant landfill infrastructure.
- 2.7.7 Where pollution controls are immediately necessary to prevent an incident or accident, then conditions 2.7.4 and 2.7.5 do not apply and the relevant landfill infrastructure may be constructed, provided that the construction proposals are submitted to the Agency as soon as practicable.
- 2.7.8 For the purposes of conditions 2.7.1, 2.7.3 and 2.7.4, the Agency shall be deemed to be satisfied where it has not, within the period of 4 weeks from the date of receipt of the relevant construction proposals or CQA Validation Report, either:
  - (a) confirmed whether or not it is satisfied; or
  - (b) informed the operator that it requires further information.

## **2.8 Waste acceptance**

- 2.8.1 Wastes shall only be accepted for disposal if:
  - (a) they are listed in schedule 3, and
  - (b) they are non- hazardous waste, and

- (c) they are not whole used tyres (other than bicycle tyres and tyres with an outside diameter of more than 1400mm), and
- (d) they are not shredded used tyres, and
- (e) from 30<sup>th</sup> October 2007 they are not liquid waste (including waste waters but excluding sludge and excluding liquid waste accepted at a permitted leachate treatment activity), and
- (f) they are not chemical substances from research and development or teaching activities, for example laboratory residues, which are unidentified and/or which are new and whose effects on man and/or the environment are unknown, and
- (g) all the relevant waste acceptance procedures set out in schedule 1 of the Landfill Regulations have been completed, and
- (h) they fulfil the relevant waste acceptance criteria, and
- (i) they have not been diluted or mixed solely to meet the relevant waste acceptance criteria, and
- (j) from 30<sup>th</sup> October 2007 they are wastes which have been treated, except for: inert wastes for which treatment is not technically feasible; or it is waste other than inert waste and treatment would not reduce its quantity or the hazards which it poses to human health or the environment, or liquid waste accepted for treatment at a permitted leachate treatment activity, and
- (k) any code beginning with 07 05 and 16 03 shall exclude waste medicinal products and pharmaceutically active waste materials arising from their manufacture.

2.8.5 The operator shall visually inspect:

- (a) without unloading it, waste that is not in an enclosed container or enclosed vehicle on arrival at the landfill; and
- (b) waste at the point of deposit;

and shall satisfy itself that it conforms to the basic characterisation documentation submitted by the holder.

2.8.6 Where the operator has taken samples to establish that the waste is in conformity with the documentation submitted by the holder then the samples taken shall be retained for at least one month and results of any analysis for at least two years.

2.8.7 The operator on accepting each delivery of waste shall provide a receipt to the person delivering it.

2.8.8 The total quantity of waste that shall be deposited in the landfill shall be limited by the pre-settlement levels shown on drawing number ESID4.

2.8.9 The quantity of waste that is deposited in the landfill in any year shall not exceed the limits in schedule 1 table S1.4.

2.8.10 The operator shall maintain and implement a system which ensures that a record is made of the quantity, characteristics, date of delivery and, where practicable, origin of any waste that is received for disposal or recovery and of the identity of the producer, or in the case of municipal waste and multiple collection vehicles, of the collector of such waste. Any information regarded by the operator as commercially confidential shall be clearly identified in the record.

## **2.9 Leachate levels**

- 2.9.1 The limits for the level of leachate listed in schedule 4 table S4.1 shall not be exceeded.

## **2.10 Closure, aftercare and decommissioning**

- 2.10.1 The operator shall maintain and operate the activities so as to prevent or where that is not practicable, to minimise, any pollution risk on closure and decommissioning.
- 2.10.2 The operator shall maintain a site closure plan which demonstrates how the activities can be decommissioned to avoid any pollution risk and return the site of operation to a satisfactory state.
- 2.10.3 The operator shall carry out and record a review of the site closure plan at least every 4 years.
- 2.10.4 The site closure plan (or relevant part thereof) shall be implemented on final cessation or decommissioning of the activities or part thereof.

## **2.11 Site protection and monitoring programme**

- 2.11.1 The operator shall, within 6 months of the issue of this variation, submit a Site Protection and Monitoring Programme.
- 2.11.2 The operator shall implement and maintain the Site Protection and Monitoring Programme in relation to all areas which will not comprise permanent deposits of waste and shall carry out and record a review of it at least every 4 years commencing from the date the Site Protection and Monitoring Programme was received.

# **3. Emissions and monitoring**

## **3.1 Emissions to water, air or land**

- 3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 4 tables S4.2 and S4.3.
- 3.1.2 The limits given in that schedule shall not be exceeded, save that compliance with an emission limit shall include incorporation of the uncertainty allowance stated in Agency guidance LFTGN 05 and LFTGN 08.

## **3.2 Emissions to groundwater**

- 3.2.1 There shall be no emission from the activities into groundwater of any substance in List I (as defined by the Groundwater Regulations) contrary to those regulations.
- 3.2.2 There shall be no emission from the activities into groundwater of any substance in List II (as defined in the Groundwater Regulations) so as to cause pollution (as defined in those regulations).
- 3.2.3 The trigger levels for emissions into groundwater for the parameter(s) and monitoring point(s) set out in schedule 4 table S4.4 shall not be exceeded.

- 3.2.4 The operator shall submit to the Agency a review of the Hydrogeological Risk Assessment:
- (a) between 9 and 6 months prior to the fourth anniversary of the granting of the permit, and
  - (b) between 9 and 6 months prior to every subsequent 4 years after the fourth anniversary of the granting of the permit.

### **3.3 Fugitive emissions of substances**

- 3.3.1 Fugitive emissions of substances (excluding odour, noise and vibration) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures have been taken to prevent or where that is not practicable, to minimise, those emissions.
- 3.3.2 Litter or mud arising from the activities shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures have been used to prevent or where that is not practicable to minimise, the litter and mud.
- 3.3.3 Litter or mud arising from the activities shall be cleared from affected areas outside the site as soon as practicable.
- 3.3.4 All liquids, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.
- 3.3.5 The limits for landfill gas arising from the installation set out in schedule 4, table S4.5 shall not be exceeded.
- 3.3.6 The limits for particulate matter arising from the installation set out in schedule 4, table S4.10 shall not be exceeded.

### **3.4 Odour**

- 3.4.1 Emissions from the activities shall be free from odour at levels likely to cause annoyance outside the site, as perceived by an authorised officer of the Agency, unless the operator has used appropriate measures to prevent or where that is not practicable to minimise the odour.

### **3.5 Noise and vibration**

- 3.5.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause annoyance outside the site, as perceived by an authorised officer of the Agency, unless the operator has used appropriate measures to prevent or where that is not practicable to minimise the noise and vibration.

### **3.6 Monitoring**

- 3.6.1 The operator shall, unless otherwise agreed in writing by the Agency, undertake the monitoring specified in the following tables in schedule 4 to this permit:
- (a) Leachate specified in tables S4.1 and S4.8;

- (b) Point source emissions specified in tables S4.2 and S4.3;
  - (c) Groundwater specified in tables S4.4 and S4.9;
  - (d) Landfill gas specified in tables S4.5, S4.6 and S4.7; and
  - (e) Particulate matter specified in table S4.10.
- 3.6.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.
- 3.6.3 A topographical survey of the site referenced to ordnance datum shall be carried out:
- (a) annually, and
  - (b) prior to the disposal of waste in any new cell or new development area of the landfill, and
  - (c) following closure of the landfill or part of the landfill.
- The topographical survey shall be used to produce a plan of a scale adequate to show the surveyed features of the site.
- 3.6.4 Within 10 months of the issue of this variation (unless otherwise agreed in writing by the Agency) the site reference data identified in the Site Protection and Monitoring Programme shall be collected and submitted to the Agency.

## **3.7 Transfers off-site**

- 3.7.1 Records of all the wastes sent off site from the activities, for either disposal or recovery, shall be maintained.

# **4. Information**

## **4.1 Records**

- 4.1.1 All records required to be made by this permit shall:
- (a) be legible;
  - (b) be made as soon as reasonably practicable;
  - (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and
  - (d) be retained, unless otherwise agreed in writing by the Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:
    - (i) the results of groundwater monitoring;
    - (ii) the Site Protection and Monitoring Programme;
    - (iii) sub-surface landfill gas monitoring;
    - (iv) leachate levels, quality and quantities;
    - (v) landfill gas generation and collection;

- (vi) waste types and quantities;
  - (vii) the specification and as built drawings of the basal, sidewall and capping engineering systems.
- 4.1.2. Any records required to be made by this permit shall be supplied to the Agency within 14 days where the records have been requested in writing by the Agency.
- 4.1.3. All records required to be held by this permit shall be held on site and shall be available for inspection by the Agency at any reasonable time.

## 4.2 Reporting

- 4.2.1 A report or reports on the performance of the activities over the previous year shall be submitted to the Agency by 31 January (or other date agreed in writing by the Agency) each year. The report(s) shall include as a minimum:
  - (a) a review of the results of the monitoring and assessment carried out in accordance with this permit against the relevant assumptions, parameters and results in the risk assessments submitted in relation to this installation and any agreed amendments thereto;
  - (b) where the operator's management system encompasses annual improvement targets, a summary report of the previous year's progress against such targets;
  - (c) the energy consumed at the site, reported in the format set out in schedule 5 table S5.3
  - (d) the annual production/treatment set out in schedule 5 table S5.2;
  - (e) details of any contamination or decontamination of the site which has occurred;
  - (f) the topographical surveys required by condition 3.6.3 other than those submitted as part of a CQA validation report;
  - (g) the volumetric difference (reported in cubic metres) between the most recent topographical survey and the previous annual topographical survey i.e. the additional volume of the landfill void that is occupied by waste;
  - (h) an assessment of the settlement behavior of the landfill body based on the difference between the most recent topographical survey and previous annual topographical survey for the areas of the landfill which did not receive waste between the surveys;
  - (i) a calculation of the remaining capacity (reported in cubic metres) derived from the pre-settlement contours and the most recent topographical survey;
  - (j) the compliance testing undertaken in the period;
- 4.2.2 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:
  - (a) in respect of the parameters and emission points specified in schedule 5 table S5.1;

- (b) for the reporting periods specified in schedule 5 table S5.1 and using the forms specified in schedule 5 table S5.4; and
  - (c) giving the information from such results and assessments as may be required by the forms specified in those tables.
- 4.2.3 A summary report of the waste types and quantities accepted and removed from the site shall be made for each quarter. It shall be submitted to the Agency within one month of the end of the quarter and shall be in the format required by the Agency.
- 4.2.4 The operator shall, unless notice under this condition has been served within the preceding 4 years, submit to the Agency, within 6 months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.
- 4.2.5 All reports and notifications required by the permit shall be sent to the Agency using the contact details supplied in writing by the Agency
- 4.2.6 The results of reviews and any changes made to the Site Protection and Monitoring Programme shall be reported to the Agency, within 1 month of the review or change.

### **4.3 Notifications**

- 4.3.1 The Agency shall be notified without delay following the detection of:
  - (a) any malfunction, breakdown or failure of equipment or techniques, accident, or fugitive emission which has caused, is causing or may cause significant pollution;
  - (b) the breach of a limit specified in the permit;
  - (c) any significant adverse environmental effects.
- 4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 6 to this permit within the time period specified in that schedule.
- 4.3.3. Prior written notification shall be given to the Agency of the following events and in the specified timescales:
  - (a) as soon as practicable prior to the permanent cessation of any of the permitted activities;
  - (b) as soon as practicable prior to the cessation of the landfill disposal activities, for a period likely to exceed 1 month; and
  - (c) at least 7 days prior to the resumption of the landfill disposal activities after a cessation notified under (b) above.
- 4.3.4 The Agency shall be given at least 14 days notice before implementation of any part of the site closure plan in respect of any activities other than the disposal of waste in the landfill.
- 4.3.5 Where the Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Agency when the relevant monitoring is to take place. The operator shall provide this information to the Agency at least 14 days before the date the monitoring is to be undertaken.

- 4.3.6 The Agency shall be notified within 7 days of any changes in technically competent management and the name of any incoming person together with evidence that such person has the required technical competence.
- 4.3.7 The Agency shall be provided, within 14 days of the operator or any relevant person being convicted of a relevant offence, (unless such information has already been notified to the Agency), with details of the nature of the offence, the place and date of conviction, and the sentence imposed.
- 4.3.8 The Agency shall be notified within 14 days of the operator and/or any relevant person lodging an appeal against a conviction for any relevant offence and of the outcome when the appeal is decided.
- 4.3.9 The Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:
  - (a) any change in the operator's trading name, registered name or registered office address;
  - (b) any change to particulars of the operator's ultimate holding company (including details of an ultimate holding company where an operator has become a subsidiary); and
  - (c) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

## **4.4 Interpretation**

- 4.4.1 In this permit the expressions listed in schedule 7 shall have the meaning given in that schedule.

# Schedule 1 - Operations

**Table S1.1 Activities**

| Activity listed in Schedule 1 of the PPC Regulations             | Description of specified activity                                                              | Limits of specified activity                                                                                                                              |
|------------------------------------------------------------------|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Section 5.2 Part A(1) (a) , The disposal of waste in a landfill. | Landfill for non-hazardous waste (landfill classification under the Landfill Regulations 2002) | Receipt, handling, storage and disposal of wastes, consisting of the types and quantities specified in condition 2.8, as an integral part of landfilling. |
| <b>Directly Associated Activity</b>                              |                                                                                                |                                                                                                                                                           |
| Leachate management                                              | Storage and treatment of leachate in a facility with a capacity of <50 t/day                   | Leachate arising from the permitted landfill and Standard Landfill reference EAWML/37207                                                                  |
| Leachate discharges to foul sewer                                | Discharge of treated leachate from the leachate treatment facility                             | From leachate management system to point of entry to the sewer                                                                                            |
| Landfill gas utilisation                                         | Utilisation of landfill gas for energy recovery in an appliance <3 MW rated thermal input      | Landfill gas arising from the landfill.                                                                                                                   |
| Landfill gas flaring                                             | Flaring of landfill gas for disposal in an appliance.                                          | Landfill gas arising from the landfill.                                                                                                                   |
| Water discharges to controlled waters.                           | Discharges of site drainage from the landfill.                                                 | From surface water management system to point of entry to controlled waters.                                                                              |

**Table S1.2 Operating techniques**

| Description                                                                                                    | Parts                                                                                       | Date Received                         |
|----------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|---------------------------------------|
| Application                                                                                                    | The response to questions 1.2, 2.1, 2.2, 2.3, 2.4 and 2.5 in part B of the Application Form | 08/10/2003                            |
| Letter from Egniol detailing monitoring sections of the application form and amended drawing references        | All                                                                                         | 21/10/2003                            |
| Letter from Egniol detailing clarification on points raised in our letter of 27/02/2004                        | All                                                                                         | 29/03/2004                            |
| Revised Drawing ESID 11 Revision A Local Hydrogeology and Hydrology – surface water monitoring points added    | All                                                                                         | 13/07/2004                            |
| Revised Drawing ESID 2 Revision B Environmental Site Setting – legend changed to include installation boundary | All                                                                                         | Dated 06/02/2004, received 17/06/2004 |
| Compliance with Improvement Condition – replacement of groundwater boreholes GW2 and GW3                       | All                                                                                         | 31/05/2005                            |
| Compliance with Improvement Condition – location of gas flare                                                  | All                                                                                         | 06/03/2006                            |

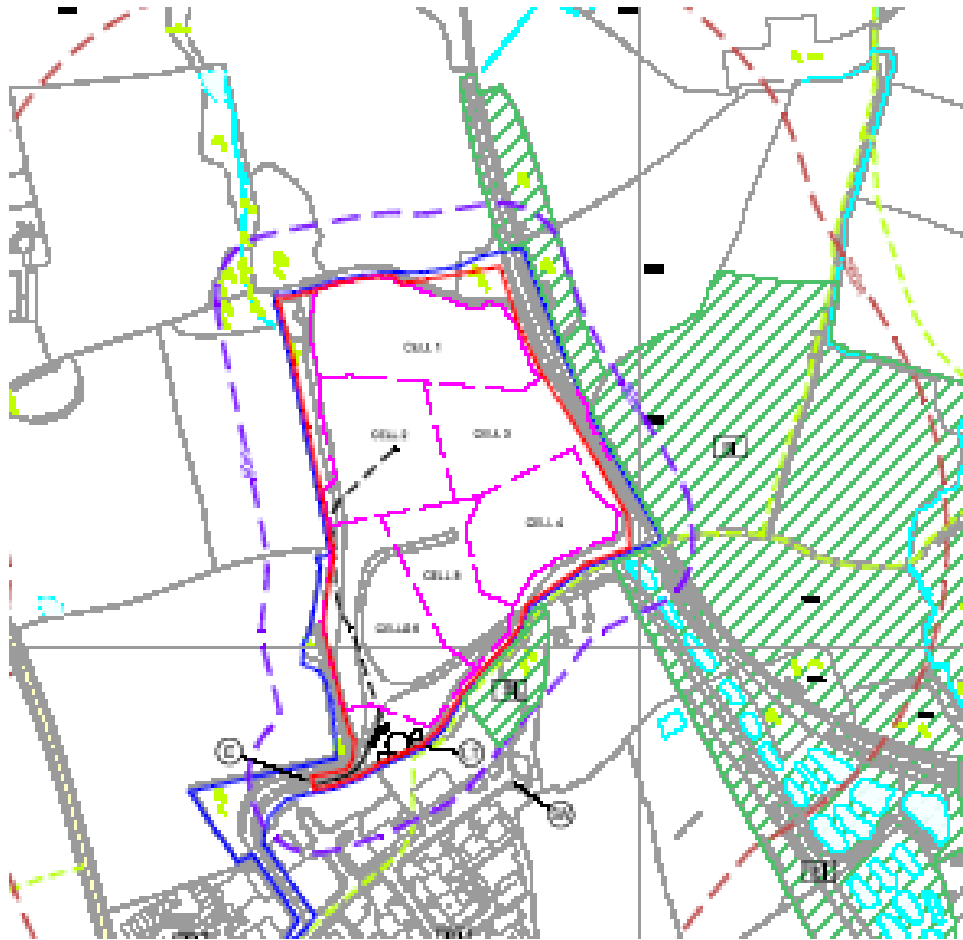
**Table S1.3 Improvement programme requirements**

| Reference | Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Date       |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|
| 1.        | The operator shall submit a written report to the Agency for approval that details an assessment of the provision of groundwater monitoring boreholes against the requirements of LFTGN02 (Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water, Environment Agency, February 2003) and includes proposals for additional groundwater monitoring boreholes, where appropriate, and time-scales for their construction.                                                                                                                                                                           | 30/06/2007 |
| 2.        | The operator shall submit a report in writing to the Agency for approval that details a review of the groundwater quality monitoring data in all boreholes on site and the trigger levels in the down-gradient boreholes GW2, GW3 and GW4. This should include data from all boreholes since operations commenced, including collation of baseline data. The report shall include revised trigger levels, where appropriate, for boreholes GW2, GW3 and GW4 and any additional boreholes which shall be set in accordance with LFTGN01 Hydrogeological Risk Assessments for Landfills, Environment Agency, March 2003. | 30/09/2007 |
| 3.        | The operator shall submit a report in writing to the Agency for approval that details a review of the leachate management systems at the site. The report shall include a water balance assessment over the site and identify leachate levels in relation to depth to base of the landfill liner.                                                                                                                                                                                                                                                                                                                      | 30/06/2007 |
| 4.        | The operator shall submit a written report to the Agency for approval that includes proposals for landfill gas utilisation, including the location and specification of the gas utilisation plant, a report of the impact of emissions from the gas utilisation plant on air quality and the timescale for installation of the gas utilisation plant.                                                                                                                                                                                                                                                                  | 31/12/2007 |
| 5.        | The operator shall review the results of landfill gas monitoring in boreholes 20 and 21 and shall submit a report to the Agency for approval detailing the results of the review together with proposed trigger levels for methane and carbon dioxide for boreholes 20 and 21.                                                                                                                                                                                                                                                                                                                                         | 30/09/2007 |
| 6.        | The operator shall carry out an assessment of the impact of the emissions from the leachate treatment plant into the sewer on the receiving water in accordance with IPPC H1 Environmental Assessment and Appraisal of BAT, Environment Agency, 2002 and shall submit a written report to the Agency.                                                                                                                                                                                                                                                                                                                  | 30/09/2007 |

**Table S1.4 Annual waste input limits**

| Category            | Limit Tonnes/ Year |
|---------------------|--------------------|
| Non-hazardous waste | 190,000            |
| Inert waste         | 10,000             |

## Schedule 2 - Site plan



Extract from drawing reference ESID2 Revision B dated 06/02/2004 - Not to scale

Reproduced from the Ordnance Survey map with the permission of the Controller of Her Majesty's Stationery Office ©Crown Copyright 2000. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

## Schedule 3 - List of permitted wastes

|              |                                                                                                                                                                                                                       |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>01 01</b> | <b>wastes from mineral excavation</b>                                                                                                                                                                                 |
| 01 01 01     | wastes from mineral metalliferous excavation                                                                                                                                                                          |
| 01 01 02     | wastes from mineral non-metalliferous excavation                                                                                                                                                                      |
| <b>01 03</b> | <b>wastes from physical and chemical processing of metalliferous minerals</b>                                                                                                                                         |
| 01 03 06     | tailings other than those mentioned in 01 03 04 and 01 03 05                                                                                                                                                          |
| 01 03 08     | dusty and powdery wastes other than those mentioned in 01 03 07                                                                                                                                                       |
| 01 03 09     | red mud from alumina production other than the wastes mentioned in 01 03 07                                                                                                                                           |
| <b>01 04</b> | <b>wastes from physical and chemical processing of non-metalliferous minerals</b>                                                                                                                                     |
| 01 04 08     | waste gravel and crushed rocks other than those mentioned in 01 04 07                                                                                                                                                 |
| 01 04 09     | waste sand and clays                                                                                                                                                                                                  |
| 01 04 10     | dusty and powdery wastes other than those mentioned in 01 04 07                                                                                                                                                       |
| 01 04 11     | wastes from potash and rock salt processing other than those mentioned in 01 04 07                                                                                                                                    |
| 01 04 12     | tailings and other wastes from washing and cleaning of minerals other than those mentioned in 01 04 07 and 01 04 11                                                                                                   |
| 01 04 13     | wastes from stone cutting and sawing other than those mentioned in 01 04 07                                                                                                                                           |
| <b>01 05</b> | <b>drilling muds and other drilling wastes</b>                                                                                                                                                                        |
| 01 05 04     | freshwater drilling muds and wastes                                                                                                                                                                                   |
| 01 05 07     | barite-containing drilling muds and wastes other than those mentioned in 01 05 05 and 01 05 06                                                                                                                        |
| 01 05 08     | chloride-containing drilling muds and wastes other than those mentioned in 01 05 05 and 01 05 06                                                                                                                      |
| <b>02 01</b> | <b>wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing</b>                                                                                                                              |
| 02 01 01     | sludges from washing and cleaning                                                                                                                                                                                     |
| 02 01 02     | animal-tissue waste                                                                                                                                                                                                   |
| 02 01 03     | plant-tissue waste                                                                                                                                                                                                    |
| 02 01 04     | waste plastics (except packaging)                                                                                                                                                                                     |
| 02 01 06     | animal faeces, urine and manure (including spoiled straw), effluent, collected separately and treated off-site                                                                                                        |
| 02 01 07     | wastes from forestry                                                                                                                                                                                                  |
| 02 01 09     | agrochemical waste other than those mentioned in 02 01 08                                                                                                                                                             |
| 02 01 10     | waste metal                                                                                                                                                                                                           |
| <b>02 02</b> | <b>wastes from the preparation and processing of meat, fish and other foods of animal origin</b>                                                                                                                      |
| 02 02 01     | sludges from washing and cleaning                                                                                                                                                                                     |
| 02 02 02     | animal-tissue waste                                                                                                                                                                                                   |
| 02 02 03     | materials unsuitable for consumption or processing                                                                                                                                                                    |
| 02 02 04     | sludges from on-site effluent treatment                                                                                                                                                                               |
| <b>02 03</b> | <b>wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation</b> |
| 02 03 01     | sludges from washing, cleaning, peeling, centrifuging and separation                                                                                                                                                  |
| 02 03 02     | wastes from preserving agents                                                                                                                                                                                         |
| 02 03 03     | wastes from solvent extraction                                                                                                                                                                                        |
| 02 03 04     | materials unsuitable for consumption or processing                                                                                                                                                                    |
| 02 03 05     | sludges from on-site effluent treatment                                                                                                                                                                               |
| <b>02 04</b> | <b>wastes from sugar processing</b>                                                                                                                                                                                   |
| 02 04 01     | soil from cleaning and washing beet                                                                                                                                                                                   |
| 02 04 02     | off-specification calcium carbonate                                                                                                                                                                                   |
| 02 04 03     | sludges from on-site effluent treatment                                                                                                                                                                               |
| <b>02 05</b> | <b>wastes from the dairy products industry</b>                                                                                                                                                                        |
| 02 05 01     | materials unsuitable for consumption or processing                                                                                                                                                                    |
| 02 05 02     | sludges from on-site effluent treatment                                                                                                                                                                               |
| <b>02 06</b> | <b>wastes from the baking and confectionery industry</b>                                                                                                                                                              |
| 02 06 01     | materials unsuitable for consumption or processing                                                                                                                                                                    |
| 02 06 02     | wastes from preserving agents                                                                                                                                                                                         |
| 02 06 03     | sludges from on-site effluent treatment                                                                                                                                                                               |

|              |                                                                                                             |
|--------------|-------------------------------------------------------------------------------------------------------------|
| <b>02 07</b> | <b>wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)</b>   |
| 02 07 01     | wastes from washing, cleaning and mechanical reduction of raw materials                                     |
| 02 07 02     | wastes from spirits distillation                                                                            |
| 02 07 03     | wastes from chemical treatment                                                                              |
| 02 07 04     | materials unsuitable for consumption or processing                                                          |
| 02 07 05     | sludges from on-site effluent treatment                                                                     |
| <b>03 01</b> | <b>wastes from wood processing and the production of panels and furniture</b>                               |
| 03 01 01     | waste bark and cork                                                                                         |
| 03 01 05     | sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04         |
| <b>03 03</b> | <b>wastes from pulp, paper and cardboard production and processing</b>                                      |
| 03 03 01     | waste bark and wood                                                                                         |
| 03 03 02     | green liquor sludge (from recovery of cooking liquor)                                                       |
| 03 03 05     | de-inking sludges from paper recycling                                                                      |
| 03 03 07     | mechanically separated rejects from pulping of waste paper and cardboard                                    |
| 03 03 08     | wastes from sorting of paper and cardboard destined for recycling                                           |
| 03 03 09     | lime mud waste                                                                                              |
| 03 03 10     | fibre rejects, fibre-, filler- and coating-sludges from mechanical separation                               |
| 03 03 11     | sludges from on-site effluent treatment other than those mentioned in 03 03 10                              |
| <b>04 01</b> | <b>wastes from the leather and fur industry</b>                                                             |
| 04 01 01     | fleshings and lime split wastes                                                                             |
| 04 01 02     | liming waste                                                                                                |
| 04 01 06     | sludges, in particular from on-site effluent treatment containing chromium                                  |
| 04 01 07     | sludges, in particular from on-site effluent treatment free of chromium                                     |
| 04 01 08     | waste tanned leather (blue sheetings, shavings, cuttings, buffing dust) containing chromium                 |
| 04 01 09     | wastes from dressing and finishing                                                                          |
| <b>04 02</b> | <b>wastes from the textile industry</b>                                                                     |
| 04 02 09     | wastes from composite materials (impregnated textile, elastomer, plastomer)                                 |
| 04 02 10     | organic matter from natural products (for example grease, wax)                                              |
| 04 02 15     | wastes from finishing other than those mentioned in 04 02 14                                                |
| 04 02 17     | dyestuffs and pigments other than those mentioned in 04 02 16                                               |
| 04 02 20     | sludges from on-site effluent treatment other than those mentioned in 04 02 19                              |
| 04 02 21     | wastes from unprocessed textile fibres                                                                      |
| 04 02 22     | wastes from processed textile fibres                                                                        |
| <b>05 01</b> | <b>wastes from petroleum refining</b>                                                                       |
| 05 01 10     | sludges from on-site effluent treatment other than those mentioned in 05 01 09                              |
| 05 01 13     | boiler feedwater sludges                                                                                    |
| 05 01 14     | wastes from cooling columns                                                                                 |
| 05 01 16     | sulphur-containing wastes from petroleum desulphurisation                                                   |
| 05 01 17     | bitumen                                                                                                     |
| <b>05 06</b> | <b>wastes from the pyrolytic treatment of coal</b>                                                          |
| 05 06 04     | waste from cooling columns                                                                                  |
| <b>05 07</b> | <b>wastes from natural gas purification and transportation</b>                                              |
| 05 07 02     | wastes containing sulphur                                                                                   |
| <b>06 03</b> | <b>wastes from the MFSU of salts and their solutions and metallic oxides</b>                                |
| 06 03 14     | solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13                               |
| 06 03 16     | metallic oxides other than those mentioned in 06 03 15                                                      |
| <b>06 05</b> | <b>sludges from on-site effluent treatment</b>                                                              |
| 06 05 03     | sludges from on-site effluent treatment other than those mentioned in 06 05 02                              |
| <b>06 06</b> | <b>wastes from the MFSU of sulphur chemicals, sulphur chemical processes and desulphurisation processes</b> |
| 06 06 03     | wastes containing sulphides other than those mentioned in 06 06 02                                          |
| <b>06 09</b> | <b>wastes from the MSFU of phosphorous chemicals and phosphorous chemical processes</b>                     |
| 06 09 02     | phosphorous slag                                                                                            |
| 06 09 04     | calcium-based reaction wastes other than those mentioned in 06 09 03                                        |
| <b>06 11</b> | <b>wastes from the manufacture of inorganic pigments and opacifiers</b>                                     |
| 06 11 01     | calcium-based reaction wastes from titanium dioxide production                                              |
| <b>06 13</b> | <b>wastes from inorganic chemical processes not otherwise specified</b>                                     |
| 06 13 03     | carbon black                                                                                                |

|              |                                                                                                                                                           |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>07 01</b> | <b>wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals</b>                                                         |
| 07 01 12     | sludges from on-site effluent treatment other than those mentioned in 07 01 11                                                                            |
| <b>07 02</b> | <b>wastes from the MFSU of plastics, synthetic rubber and man-made fibres</b>                                                                             |
| 07 02 12     | sludges from on-site effluent treatment other than those mentioned in 07 02 11                                                                            |
| 07 02 13     | waste plastic                                                                                                                                             |
| 07 02 15     | wastes from additives other than those mentioned in 07 02 14                                                                                              |
| 07 02 17     | wastes containing silicones other than those mentioned in 07 02 16                                                                                        |
| <b>07 03</b> | <b>wastes from the MFSU of organic dyes and pigments (except 06 11)</b>                                                                                   |
| 07 03 12     | sludges from on-site effluent treatment other than those mentioned in 07 03 11                                                                            |
| <b>07 04</b> | <b>wastes from the MFSU of organic plant protection products (except 02 01 08 and 02 01 09), wood preserving agents (except 03 02) and other biocides</b> |
| 07 04 12     | sludges from on-site effluent treatment other than those mentioned in 07 04 11                                                                            |
| <b>07 05</b> | <b>wastes from the MFSU of pharmaceuticals</b>                                                                                                            |
| 07 05 12     | sludges from on-site effluent treatment other than those mentioned in 07 05 11                                                                            |
| 07 05 14     | solid wastes other than those mentioned in 07 05 13                                                                                                       |
| <b>07 06</b> | <b>wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics</b>                                                               |
| 07 06 12     | sludges from on-site effluent treatment other than those mentioned in 07 06 11                                                                            |
| <b>07 07</b> | <b>wastes from the MFSU of fine chemicals and chemical products not otherwise specified</b>                                                               |
| 07 07 12     | sludges from on-site effluent treatment other than those mentioned in 07 07 11                                                                            |
| <b>08 01</b> | <b>wastes from MFSU and removal of paint and varnish</b>                                                                                                  |
| 08 01 12     | waste paint and varnish other than those mentioned in 08 01 11                                                                                            |
| 08 01 14     | sludges from paint or varnish other than those mentioned in 08 01 13                                                                                      |
| 08 01 16     | aqueous sludges containing paint or varnish other than those mentioned in 08 01 15                                                                        |
| 08 01 18     | wastes from paint or varnish removal other than those mentioned in 08 01 17                                                                               |
| <b>08 02</b> | <b>wastes from MFSU of other coatings (including ceramic materials)</b>                                                                                   |
| 08 02 01     | waste coating powders                                                                                                                                     |
| 08 02 02     | aqueous sludges containing ceramic materials                                                                                                              |
| <b>08 03</b> | <b>wastes from MFSU of printing inks</b>                                                                                                                  |
| 08 03 07     | aqueous sludges containing ink                                                                                                                            |
| 08 03 13     | waste ink other than those mentioned in 08 03 12                                                                                                          |
| 08 03 15     | ink sludges other than those mentioned in 08 03 14                                                                                                        |
| 08 03 18     | waste printing toner other than those mentioned in 08 03 17                                                                                               |
| <b>08 04</b> | <b>wastes from MFSU of adhesives and sealants (including waterproofing products)</b>                                                                      |
| 08 04 10     | waste adhesives and sealants other than those mentioned in 08 04 09                                                                                       |
| 08 04 12     | adhesive and sealant sludges other than those mentioned in 08 04 11                                                                                       |
| 08 04 14     | aqueous sludges containing adhesives or sealants other than those mentioned in 08 04 13                                                                   |
| <b>09 01</b> | <b>wastes from the photographic industry</b>                                                                                                              |
| 09 01 07     | photographic film and paper containing silver or silver compounds                                                                                         |
| 09 01 08     | photographic film and paper free of silver or silver compounds                                                                                            |
| 09 01 10     | single-use cameras without batteries                                                                                                                      |
| 09 01 12     | single-use cameras containing batteries other than those mentioned in 09 01 11                                                                            |
| <b>10 01</b> | <b>wastes from power stations and other combustion plants (except 19)</b>                                                                                 |
| 10 01 01     | bottom ash, slag and boiler dust (excluding boiler dust mentioned in 10 01 04)                                                                            |
| 10 01 02     | coal fly ash                                                                                                                                              |
| 10 01 03     | fly ash from peat and untreated wood                                                                                                                      |
| 10 01 05     | calcium-based reaction wastes from flue-gas desulphurisation in solid form                                                                                |
| 10 01 07     | calcium-based reaction wastes from flue-gas desulphurisation in sludge form                                                                               |
| 10 01 15     | bottom ash, slag and boiler dust from co-incineration other than those mentioned in 10 01 14                                                              |
| 10 01 17     | fly ash from co-incineration other than those mentioned in 10 01 16                                                                                       |
| 10 01 19     | wastes from gas cleaning other than those mentioned in 10 01 05, 10 01 07 and 10 01 18                                                                    |
| 10 01 21     | sludges from on-site effluent treatment other than those mentioned in 10 01 20                                                                            |
| 10 01 23     | aqueous sludges from boiler cleansing other than those mentioned in 10 01 22                                                                              |
| 10 01 24     | sands from fluidised beds                                                                                                                                 |
| 10 01 25     | wastes from fuel storage and preparation of coal-fired power plants                                                                                       |
| 10 01 26     | wastes from cooling-water treatment                                                                                                                       |
| <b>10 02</b> | <b>wastes from the iron and steel industry</b>                                                                                                            |
| 10 02 01     | wastes from the processing of slag                                                                                                                        |

|              |                                                                                                   |
|--------------|---------------------------------------------------------------------------------------------------|
| 10 02 02     | unprocessed slag                                                                                  |
| 10 02 08     | solid wastes from gas treatment other than those mentioned in 10 02 07                            |
| 10 02 10     | mill scales                                                                                       |
| 10 02 12     | wastes from cooling-water treatment other than those mentioned in 10 02 11                        |
| 10 02 14     | sludges and filter cakes from gas treatment other than those mentioned in 10 02 13                |
| 10 02 15     | other sludges and filter cakes                                                                    |
| <b>10 03</b> | <b>wastes from aluminium thermal metallurgy</b>                                                   |
| 10 03 02     | anode scraps                                                                                      |
| 10 03 05     | waste alumina                                                                                     |
| 10 03 16     | skimmings other than those mentioned in 10 03 15                                                  |
| 10 03 18     | carbon-containing wastes from anode manufacture other than those mentioned in 10 03 17            |
| 10 03 20     | flue-gas dust other than those mentioned in 10 03 19                                              |
| 10 03 22     | other particulates and dust (including ball-mill dust) other than those mentioned in 10 03 21     |
| 10 03 24     | solid wastes from gas treatment other than those mentioned in 10 03 23                            |
| 10 03 26     | sludges and filter cakes from gas treatment other than those mentioned in 10 03 25                |
| 10 03 28     | wastes from cooling-water treatment other than those mentioned in 10 03 27                        |
| 10 03 30     | wastes from treatment of salt slags and black drosses other than those mentioned in 10 03 29      |
| <b>10 04</b> | <b>wastes from lead thermal metallurgy</b>                                                        |
| 10 04 10     | wastes from cooling-water treatment other than those mentioned in 10 04 09                        |
| <b>10 05</b> | <b>wastes from zinc thermal metallurgy</b>                                                        |
| 10 05 01     | slags from primary and secondary production                                                       |
| 10 05 04     | other particulates and dust                                                                       |
| 10 05 09     | wastes from cooling-water treatment other than those mentioned in 10 05 08                        |
| 10 05 11     | dross and skimmings other than those mentioned in 10 05 10                                        |
| <b>10 06</b> | <b>wastes from copper thermal metallurgy</b>                                                      |
| 10 06 01     | slags from primary and secondary production                                                       |
| 10 06 02     | dross and skimmings from primary and secondary production                                         |
| 10 06 04     | other particulates and dust                                                                       |
| 10 06 10     | wastes from cooling-water treatment other than those mentioned in 10 06 09                        |
| <b>10 07</b> | <b>wastes from silver, gold and platinum thermal metallurgy</b>                                   |
| 10 07 01     | slags from primary and secondary production                                                       |
| 10 07 02     | dross and skimmings from primary and secondary production                                         |
| 10 07 03     | solid wastes from gas treatment                                                                   |
| 10 07 04     | other particulates and dust                                                                       |
| 10 07 05     | sludges and filter cakes from gas treatment                                                       |
| 10 07 08     | wastes from cooling-water treatment other than those mentioned in 10 07 07                        |
| <b>10 08</b> | <b>wastes from other non-ferrous thermal metallurgy</b>                                           |
| 10 08 04     | particulates and dust                                                                             |
| 10 08 09     | other slags                                                                                       |
| 10 08 11     | dross and skimmings other than those mentioned in 10 08 10                                        |
| 10 08 13     | carbon-containing wastes from anode manufacture other than those mentioned in 10 08 12            |
| 10 08 14     | anode scrap                                                                                       |
| 10 08 16     | flue-gas dust other than those mentioned in 10 08 15                                              |
| 10 08 18     | sludges and filter cakes from flue-gas treatment other than those mentioned in 10 08 17           |
| 10 08 20     | wastes from cooling-water treatment other than those mentioned in 10 08 19                        |
| <b>10 09</b> | <b>wastes from casting of ferrous pieces</b>                                                      |
| 10 09 03     | furnace slag                                                                                      |
| 10 09 06     | casting cores and moulds which have not undergone pouring other than those mentioned in 10 09 05  |
| 10 09 08     | casting cores and moulds which have undergone pouring other than those mentioned in 10 09 07      |
| 10 09 10     | flue-gas dust other than those mentioned in 10 09 09                                              |
| 10 09 12     | other particulates other than those mentioned in 10 09 11                                         |
| 10 09 14     | waste binders other than those mentioned in 10 09 13                                              |
| 10 09 16     | waste crack-indicating agent other than those mentioned in 10 09 15                               |
| 10 09 99     | wastes not otherwise specified                                                                    |
| <b>10 10</b> | <b>wastes from casting of non-ferrous pieces</b>                                                  |
| 10 10 03     | furnace slag                                                                                      |
| 10 10 06     | casting cores and moulds which have not undergone pouring, other than those mentioned in 10 10 05 |

|              |                                                                                                                                                                                                                              |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10 10 08     | casting cores and moulds which have undergone pouring, other than those mentioned in 10 10 07                                                                                                                                |
| 10 10 10     | flue-gas dust other than those mentioned in 10 10 09                                                                                                                                                                         |
| 10 10 12     | other particulates other than those mentioned in 10 10 11                                                                                                                                                                    |
| 10 10 14     | waste binders other than those mentioned in 10 10 13                                                                                                                                                                         |
| 10 10 16     | waste crack-indicating agent other than those mentioned in 10 10 15                                                                                                                                                          |
| <b>10 11</b> | <b>wastes from manufacture of glass and glass products</b>                                                                                                                                                                   |
| 10 11 03     | waste glass-based fibrous materials                                                                                                                                                                                          |
| 10 11 05     | particulates and dust                                                                                                                                                                                                        |
| 10 11 10     | waste preparation mixture before thermal processing, other than those mentioned in 10 11 09                                                                                                                                  |
| 10 11 12     | waste glass other than those mentioned in 10 11 11                                                                                                                                                                           |
| 10 11 14     | glass-polishing and -grinding sludge other than those mentioned in 10 11 13                                                                                                                                                  |
| 10 11 16     | solid wastes from flue-gas treatment other than those mentioned in 10 11 15                                                                                                                                                  |
| 10 11 18     | sludges and filter cakes from flue-gas treatment other than those mentioned in 10 11 17                                                                                                                                      |
| 10 11 20     | solid wastes from on-site effluent treatment other than those mentioned in 10 11 19                                                                                                                                          |
| <b>10 12</b> | <b>wastes from manufacture of ceramic goods, bricks, tiles and construction products</b>                                                                                                                                     |
| 10 12 01     | waste preparation mixture before thermal processing                                                                                                                                                                          |
| 10 12 03     | particulates and dust                                                                                                                                                                                                        |
| 10 12 05     | sludges and filter cakes from gas treatment                                                                                                                                                                                  |
| 10 12 06     | discarded moulds                                                                                                                                                                                                             |
| 10 12 08     | waste ceramics, bricks, tiles and construction products (after thermal processing)                                                                                                                                           |
| 10 12 10     | solid wastes from gas treatment other than those mentioned in 10 12 09                                                                                                                                                       |
| 10 12 12     | wastes from glazing other than those mentioned in 10 12 11                                                                                                                                                                   |
| 10 12 13     | sludge from on-site effluent treatment                                                                                                                                                                                       |
| <b>10 13</b> | <b>wastes from manufacture of cement, lime and plaster and articles and products made from them</b>                                                                                                                          |
| 10 13 01     | waste preparation mixture before thermal processing                                                                                                                                                                          |
| 10 13 04     | wastes from calcination and hydration of lime                                                                                                                                                                                |
| 10 13 06     | particulates and dust (except 10 13 12 and 10 13 13)                                                                                                                                                                         |
| 10 13 07     | sludges and filter cakes from gas treatment                                                                                                                                                                                  |
| 10 13 10     | wastes from asbestos-cement manufacture other than those mentioned in 10 13 09                                                                                                                                               |
| 10 13 11     | wastes from cement-based composite materials other than those mentioned in 10 13 09 and 10 13 10                                                                                                                             |
| 10 13 13     | solid wastes from gas treatment other than those mentioned in 10 13 12                                                                                                                                                       |
| 10 13 14     | waste concrete and concrete sludge                                                                                                                                                                                           |
| <b>11 01</b> | <b>wastes from chemical surface treatment and coating of metals and other materials (for example galvanic processes, zinc coating processes, pickling processes, etching, phosphatising, alkaline degreasing, anodising)</b> |
| 11 01 10     | sludges and filter cakes other than those mentioned in 11 01 09                                                                                                                                                              |
| 11 01 14     | degreasing wastes other than those mentioned in 11 01 13                                                                                                                                                                     |
| <b>11 02</b> | <b>wastes from non-ferrous hydrometallurgical processes</b>                                                                                                                                                                  |
| 11 02 03     | wastes from the production of anodes for aqueous electrolytical processes                                                                                                                                                    |
| 11 02 06     | wastes from copper hydrometallurgical processes other than those mentioned in 11 02 05                                                                                                                                       |
| <b>11 05</b> | <b>wastes from hot galvanising processes</b>                                                                                                                                                                                 |
| 11 05 01     | hard zinc                                                                                                                                                                                                                    |
| 11 05 02     | zinc ash                                                                                                                                                                                                                     |
| <b>12 01</b> | <b>wastes from shaping and physical and mechanical surface treatment of metals and plastics</b>                                                                                                                              |
| 12 01 01     | ferrous metal filings and turnings                                                                                                                                                                                           |
| 12 01 02     | ferrous metal dust and particles                                                                                                                                                                                             |
| 12 01 03     | non-ferrous metal filings and turnings                                                                                                                                                                                       |
| 12 01 04     | non-ferrous metal dust and particles                                                                                                                                                                                         |
| 12 01 05     | plastics shavings and turnings                                                                                                                                                                                               |
| 12 01 13     | welding wastes                                                                                                                                                                                                               |
| 12 01 15     | machining sludges other than those mentioned in 12 01 14                                                                                                                                                                     |
| 12 01 17     | waste blasting material other than those mentioned in 12 01 16                                                                                                                                                               |
| 12 01 21     | spent grinding bodies and grinding materials other than those mentioned in 12 01 20                                                                                                                                          |
| <b>15 01</b> | <b>packaging (including separately collected municipal packaging waste)</b>                                                                                                                                                  |
| 15 01 01     | paper and cardboard packaging                                                                                                                                                                                                |
| 15 01 02     | plastic packaging                                                                                                                                                                                                            |
| 15 01 03     | wooden packaging                                                                                                                                                                                                             |
| 15 01 04     | metallic packaging                                                                                                                                                                                                           |
| 15 01 05     | composite packaging                                                                                                                                                                                                          |

|              |                                                                                                                                                                                                           |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15 01 06     | mixed packaging                                                                                                                                                                                           |
| 15 01 07     | glass packaging                                                                                                                                                                                           |
| 15 01 09     | textile packaging                                                                                                                                                                                         |
| <b>15 02</b> | <b>absorbents, filter materials, wiping cloths and protective clothing</b>                                                                                                                                |
| 15 02 03     | absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02                                                                                                |
| <b>16 01</b> | <b>end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)</b> |
| 16 01 06     | end-of-life vehicles, containing neither liquids nor other hazardous components                                                                                                                           |
| 16 01 12     | brake pads other than those mentioned in 16 01 11                                                                                                                                                         |
| 16 01 16     | tanks for liquefied gas                                                                                                                                                                                   |
| 16 01 17     | ferrous metal                                                                                                                                                                                             |
| 16 01 18     | non-ferrous metal                                                                                                                                                                                         |
| 16 01 19     | plastic                                                                                                                                                                                                   |
| 16 01 20     | glass                                                                                                                                                                                                     |
| 16 01 22     | components not otherwise specified                                                                                                                                                                        |
| <b>16 02</b> | <b>wastes from electrical and electronic equipment</b>                                                                                                                                                    |
| 16 02 14     | discarded equipment other than those mentioned in 16 02 09 to 16 02 13                                                                                                                                    |
| 16 02 16     | components removed from discarded equipment other than those mentioned in 16 02 15                                                                                                                        |
| <b>16 03</b> | <b>off-specification batches and unused products</b>                                                                                                                                                      |
| 16 03 04     | inorganic wastes other than those mentioned in 16 03 03                                                                                                                                                   |
| 16 03 06     | organic wastes other than those mentioned in 16 03 05                                                                                                                                                     |
| <b>16 05</b> | <b>gases in pressure containers and discarded chemicals</b>                                                                                                                                               |
| 16 05 09     | discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08                                                                                                                          |
| <b>16 06</b> | <b>batteries and accumulators</b>                                                                                                                                                                         |
| 16 06 04     | alkaline batteries (except 16 06 03)                                                                                                                                                                      |
| 16 06 05     | other batteries and accumulators                                                                                                                                                                          |
| <b>16 08</b> | <b>spent catalysts</b>                                                                                                                                                                                    |
| 16 08 01     | spent catalysts containing gold, silver, rhenium, rhodium, palladium, iridium or platinum (except 16 08 07)                                                                                               |
| 16 08 03     | spent catalysts containing transition metals or transition metal compounds not otherwise specified                                                                                                        |
| <b>16 11</b> | <b>waste linings and refractories</b>                                                                                                                                                                     |
| 16 11 02     | carbon-based linings and refractories from metallurgical processes others than those mentioned in 16 11 01                                                                                                |
| 16 11 04     | other linings and refractories from metallurgical processes other than those mentioned in 16 11 03                                                                                                        |
| 16 11 06     | linings and refractories from non-metallurgical processes others than those mentioned in 16 11 05                                                                                                         |
| <b>17 01</b> | <b>concrete, bricks, tiles and ceramics</b>                                                                                                                                                               |
| 17 01 01     | concrete                                                                                                                                                                                                  |
| 17 01 02     | bricks                                                                                                                                                                                                    |
| 17 01 03     | tiles and ceramics                                                                                                                                                                                        |
| 17 01 07     | mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06                                                                                                                   |
| <b>17 02</b> | <b>wood, glass and plastic</b>                                                                                                                                                                            |
| 17 02 01     | wood                                                                                                                                                                                                      |
| 17 02 02     | glass                                                                                                                                                                                                     |
| 17 02 03     | plastic                                                                                                                                                                                                   |
| <b>17 03</b> | <b>bituminous mixtures, coal tar and tarred products</b>                                                                                                                                                  |
| 17 03 02     | bituminous mixtures other than those mentioned in 17 03 01                                                                                                                                                |
| <b>17 04</b> | <b>metals (including their alloys)</b>                                                                                                                                                                    |
| 17 04 01     | copper, bronze, brass                                                                                                                                                                                     |
| 17 04 02     | aluminium                                                                                                                                                                                                 |
| 17 04 03     | lead                                                                                                                                                                                                      |
| 17 04 04     | zinc                                                                                                                                                                                                      |
| 17 04 05     | iron and steel                                                                                                                                                                                            |
| 17 04 06     | tin                                                                                                                                                                                                       |
| 17 04 07     | mixed metals                                                                                                                                                                                              |
| 17 04 11     | cables other than those mentioned in 17 04 10                                                                                                                                                             |
| <b>17 05</b> | <b>soil (including excavated soil from contaminated sites), stones and dredging spoil</b>                                                                                                                 |
| 17 05 04     | soil and stones other than those mentioned in 17 05 03                                                                                                                                                    |
| 17 05 06     | dredging spoil other than those mentioned in 17 05 05                                                                                                                                                     |
| 17 05 08     | track ballast other than those mentioned in 17 05 07                                                                                                                                                      |

|              |                                                                                                                                                                                      |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>17 06</b> | <b>insulation materials and asbestos-containing construction materials</b>                                                                                                           |
| 17 06 04     | insulation materials other than those mentioned in 17 06 01 and 17 06 03                                                                                                             |
| <b>17 08</b> | <b>gypsum-based construction material</b>                                                                                                                                            |
| 17 08 02     | gypsum-based construction materials other than those mentioned in 17 08 01                                                                                                           |
| <b>17 09</b> | <b>other construction and demolition wastes</b>                                                                                                                                      |
| 17 09 04     | mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03                                                                               |
| <b>18 01</b> | <b>wastes from natal care, diagnosis, treatment or prevention of disease in humans</b>                                                                                               |
| 18 01 01     | sharps (except 18 01 03)                                                                                                                                                             |
| 18 01 04     | wastes whose collection and disposal is not subject to special requirements in order to prevent infection(for example dressings, plaster casts, linen, disposable clothing, diapers) |
| 18 01 07     | chemicals other than those mentioned in 18 01 06                                                                                                                                     |
| 18 01 09     | medicines other than those mentioned in 18 01 08                                                                                                                                     |
| <b>18 02</b> | <b>wastes from research, diagnosis, treatment or prevention of disease involving animals</b>                                                                                         |
| 18 02 01     | sharps (except 18 02 02)                                                                                                                                                             |
| 18 02 03     | wastes whose collection and disposal is not subject to special requirements in order to prevent infection                                                                            |
| 18 02 06     | chemicals other than those mentioned in 18 02 05                                                                                                                                     |
| 18 02 08     | medicines other than those mentioned in 18 02 07                                                                                                                                     |
| <b>19 01</b> | <b>wastes from incineration or pyrolysis of waste</b>                                                                                                                                |
| 19 01 02     | ferrous materials removed from bottom ash                                                                                                                                            |
| 19 01 12     | bottom ash and slag other than those mentioned in 19 01 11                                                                                                                           |
| 19 01 14     | fly ash other than those mentioned in 19 01 13                                                                                                                                       |
| 19 01 16     | boiler dust other than those mentioned in 19 01 15                                                                                                                                   |
| 19 01 18     | pyrolysis wastes other than those mentioned in 19 01 17                                                                                                                              |
| 19 01 19     | sands from fluidised beds                                                                                                                                                            |
| <b>19 02</b> | <b>wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)</b>                                                                    |
| 19 02 03     | premixed wastes composed only of non-hazardous wastes                                                                                                                                |
| 19 02 06     | sludges from physico/chemical treatment other than those mentioned in 19 02 05                                                                                                       |
| 19 02 10     | combustible wastes other than those mentioned in 19 02 08 and 19 02 09                                                                                                               |
| <b>19 03</b> | <b>stabilised/solidified wastes <sup>1</sup></b>                                                                                                                                     |
| 19 03 05     | stabilised wastes other than those mentioned in 19 03 04                                                                                                                             |
| 19 03 07     | solidified wastes other than those mentioned in 19 03 06                                                                                                                             |
| <b>19 04</b> | <b>vitrified waste and wastes from vitrification</b>                                                                                                                                 |
| 19 04 01     | vitrified waste                                                                                                                                                                      |
| <b>19 05</b> | <b>wastes from aerobic treatment of solid wastes</b>                                                                                                                                 |
| 19 05 01     | non-composted fraction of municipal and similar wastes                                                                                                                               |
| 19 05 02     | non-composted fraction of animal and vegetable waste                                                                                                                                 |
| 19 05 03     | off-specification compost                                                                                                                                                            |
| <b>19 06</b> | <b>wastes from anaerobic treatment of waste</b>                                                                                                                                      |
| 19 06 04     | digestate from anaerobic treatment of municipal waste                                                                                                                                |
| 19 06 06     | digestate from anaerobic treatment of animal and vegetable waste                                                                                                                     |
| 19 06 99     | wastes not otherwise specified                                                                                                                                                       |
| <b>19 07</b> | <b>landfill leachate</b>                                                                                                                                                             |
| 19 07 03     | landfill leachate other than those mentioned in 19 07 02                                                                                                                             |
| <b>19 08</b> | <b>wastes from waste water treatment plants not otherwise specified</b>                                                                                                              |
| 19 08 01     | screenings                                                                                                                                                                           |
| 19 08 02     | waste from desanding                                                                                                                                                                 |
| 19 08 05     | sludges from treatment of urban waste water                                                                                                                                          |
| 19 08 09     | grease and oil mixture from oil/water separation containing only edible oil and fats                                                                                                 |
| 19 08 12     | sludges from biological treatment of industrial waste water other than those mentioned in 19 08 11                                                                                   |
| 19 08 14     | sludges from other treatment of industrial waste water other than those mentioned in 19 08 13                                                                                        |
| <b>19 09</b> | <b>wastes from the preparation of water intended for human consumption or water for industrial use</b>                                                                               |
| 19 09 01     | solid waste from primary filtration and screenings                                                                                                                                   |
| 19 09 02     | sludges from water clarification                                                                                                                                                     |

<sup>1</sup> Stabilisation processes change the dangerousness of the constituents in the waste and thus transform hazardous waste into non-hazardous waste. Solidification processes only change the physical state of the waste (e.g. liquid into solid) by using additives without changing the chemical properties of the waste.

|              |                                                                                                                                       |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------|
| 19 09 03     | sludges from decarbonation                                                                                                            |
| 19 09 04     | spent activated carbon                                                                                                                |
| 19 09 05     | saturated or spent ion exchange resins                                                                                                |
| 19 09 06     | solutions and sludges from regeneration of ion exchangers                                                                             |
| <b>19 10</b> | <b>wastes from shredding of metal-containing wastes</b>                                                                               |
| 19 10 01     | iron and steel waste                                                                                                                  |
| 19 10 02     | non-ferrous waste                                                                                                                     |
| 19 10 04     | fluff-light fraction and dust other than those mentioned in 19 10 03                                                                  |
| 19 10 06     | other fractions other than those mentioned in 19 10 05                                                                                |
| <b>19 11</b> | <b>wastes from oil regeneration</b>                                                                                                   |
| 19 11 06     | sludges from on-site effluent treatment other than those mentioned in 19 11 05                                                        |
| <b>19 12</b> | <b>wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified</b> |
| 19 12 01     | paper and cardboard                                                                                                                   |
| 19 12 02     | ferrous metal                                                                                                                         |
| 19 12 03     | non-ferrous metal                                                                                                                     |
| 19 12 04     | plastic and rubber                                                                                                                    |
| 19 12 05     | glass                                                                                                                                 |
| 19 12 07     | wood other than that mentioned in 19 12 06                                                                                            |
| 19 12 08     | textiles                                                                                                                              |
| 19 12 09     | minerals (for example sand, stones)                                                                                                   |
| 19 12 10     | combustible waste (refuse derived fuel)                                                                                               |
| 19 12 12     | other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11             |
| <b>19 13</b> | <b>wastes from soil and groundwater remediation</b>                                                                                   |
| 19 13 02     | solid wastes from soil remediation other than those mentioned in 19 13 01                                                             |
| 19 13 04     | sludges from soil remediation other than those mentioned in 19 13 03                                                                  |
| 19 13 06     | sludges from groundwater remediation other than those mentioned in 19 13 05                                                           |
| <b>20 01</b> | <b>separately collected fractions (except 15 01)</b>                                                                                  |
| 20 01 01     | paper and cardboard                                                                                                                   |
| 20 01 02     | glass                                                                                                                                 |
| 20 01 08     | biodegradable kitchen and canteen waste                                                                                               |
| 20 01 10     | clothes                                                                                                                               |
| 20 01 11     | textiles                                                                                                                              |
| 20 01 25     | edible oil and fat                                                                                                                    |
| 20 01 28     | paint, inks, adhesives and resins other than those mentioned in 20 01 27                                                              |
| 20 01 30     | detergents other than those mentioned in 20 01 29                                                                                     |
| 20 01 32     | medicines other than those mentioned in 20 01 31                                                                                      |
| 20 01 34     | batteries and accumulators other than those mentioned in 20 01 33                                                                     |
| 20 01 36     | discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35                           |
| 20 01 38     | wood other than that mentioned in 20 01 37                                                                                            |
| 20 01 39     | plastics                                                                                                                              |
| 20 01 40     | metals                                                                                                                                |
| 20 01 41     | wastes from chimney sweeping                                                                                                          |
| <b>20 02</b> | <b>garden and park wastes (including cemetery waste)</b>                                                                              |
| 20 02 01     | biodegradable waste                                                                                                                   |
| 20 02 02     | soil and stones                                                                                                                       |
| 20 02 03     | other non-biodegradable wastes                                                                                                        |
| <b>20 03</b> | <b>other municipal wastes</b>                                                                                                         |
| 20 03 01     | mixed municipal waste                                                                                                                 |
| 20 03 02     | waste from markets                                                                                                                    |
| 20 03 03     | street-cleaning residues                                                                                                              |
| 20 03 04     | septic tank sludge                                                                                                                    |
| 20 03 06     | waste from sewage cleaning                                                                                                            |
| 20 03 07     | bulky waste                                                                                                                           |

## Schedule 4 – Emissions and monitoring

**Table S4.1 Leachate level limits and monitoring requirements**

| Monitoring point reference/<br>Description | Limit                             | Monitoring<br>frequency | Monitoring method                           |
|--------------------------------------------|-----------------------------------|-------------------------|---------------------------------------------|
| LC1, LC2, LC3, LC4, LC5, LC6               | 2m above the base of<br>each cell | monthly                 | To be agreed with the<br>Agency in writing. |

**Table S4.2 Point source emissions to air – emission limits and monitoring requirements**

| Emission point<br>Ref. & Location            | Parameter                                                  | Source                                       | Limit<br>(including<br>unit) | Reference<br>Period | Monitoring<br>Frequency | Monitoring<br>Standard or<br>Method |
|----------------------------------------------|------------------------------------------------------------|----------------------------------------------|------------------------------|---------------------|-------------------------|-------------------------------------|
| Flare                                        | Nitrogen<br>Oxides (NO <sub>x</sub> )                      | Landfill gas<br>arising from<br>the landfill | 150 mg/m <sup>3</sup>        | Hourly mean         | Annually                | ISO 10849                           |
| As shown on<br>drawing number<br>1843.GMP.07 | Carbon<br>Monoxide<br>(CO)                                 |                                              | 50 mg/m <sup>3</sup>         |                     |                         | ISO 12039                           |
|                                              | Total Volatile<br>Organic<br>compounds<br>(VOC)            |                                              | 10 mg/m <sup>3</sup>         |                     |                         | BS EN 12619 or<br>BS EN 13526       |
|                                              | Non-Methane<br>Volatile<br>Organic<br>compounds<br>(NMVOC) |                                              | 5 mg/m <sup>3</sup>          |                     |                         | BS EN 13649                         |
| Gas Engine                                   | Nitrogen<br>Oxides (NO <sub>x</sub> )                      | Landfill gas<br>arising from<br>the landfill | 650 mg/m <sup>3</sup>        | Hourly mean         | Annually                | ISO 10849                           |
| Location as<br>agreed with the<br>Agency.    | Carbon<br>Monoxide<br>(CO)                                 |                                              | 1500<br>mg/m <sup>3</sup>    |                     |                         | ISO 12039                           |
|                                              | Total Volatile<br>Organic<br>compounds<br>(VOC)            |                                              | 1750<br>mg/m <sup>3</sup>    |                     |                         | BS EN 12619 or<br>BS EN 13526       |
|                                              | Non-Methane<br>Volatile<br>Organic<br>compounds<br>(NMVOC) |                                              | 150 mg/m <sup>3</sup>        |                     |                         | BS EN 13649                         |

Footnote: Annual monitoring is only required when flares operate in excess of 10% of the time, taken on an annual assessment period.

**Table S4.3 Point source emissions to water (other than sewer) – emission limits and monitoring requirements**

| Emission point<br>Ref. & Location                     | Parameter              | Source                    | Limit (incl unit) | Reference<br>Period | Monitoring<br>Frequency | Monitoring<br>Standard or Method           |
|-------------------------------------------------------|------------------------|---------------------------|-------------------|---------------------|-------------------------|--------------------------------------------|
| P2<br>As shown on<br>drawing reference<br>1742.SWM.06 | Ammoniacal<br>nitrogen | Drainage<br>from the site | 1.6 mg/l          | Spot<br>sample      | monthly                 | To be agreed with<br>the Agency in writing |
|                                                       | COD                    |                           | 100 mg/l          |                     |                         |                                            |
|                                                       | Chloride               |                           | 250 mg/l          |                     |                         |                                            |
|                                                       | pH                     |                           | >6 < 9 pH units   |                     |                         |                                            |
|                                                       | Suspended<br>Solids    |                           | 100 mg/l          |                     |                         |                                            |

**Table S4.4 Trigger levels for emissions into groundwater and monitoring requirements**

| Monitoring point<br>reference                          | Parameter              | Limit<br>(including<br>unit) | Reference<br>Period | Monitoring<br>frequency | Monitoring<br>standard or<br>method               |
|--------------------------------------------------------|------------------------|------------------------------|---------------------|-------------------------|---------------------------------------------------|
| GW2, GW3, GW4 as<br>shown on drawing<br>number ESID 10 | Ammoniacal<br>nitrogen | 1.7 mg/l                     | Spot sample         | Quarterly               | To be agreed<br>with the<br>Agency in<br>writing. |
|                                                        | Chloride               | 60 mg/l                      |                     |                         |                                                   |
|                                                        | Nickel                 | 0.15 mg/l                    |                     |                         |                                                   |
|                                                        | Zinc                   | 0.254 mg/l                   |                     |                         |                                                   |
|                                                        | Total xylenes          | 0.003 mg/l                   |                     |                         |                                                   |
|                                                        | Toluene                | 0.004 mg/l                   |                     |                         |                                                   |

**Table S4.5 Landfill gas in external monitoring boreholes – limits and monitoring requirements**

| Monitoring point Ref.<br>/description                                                                         | Parameter      | Limit (including<br>units) * | Monitoring<br>frequency | Monitoring standard or method               |
|---------------------------------------------------------------------------------------------------------------|----------------|------------------------------|-------------------------|---------------------------------------------|
| BH1, BH3, BH4, BH5, BH6, BH7,<br>BH10, BH11, BH12, BH13, BH14,<br>BH15, BH16, BH17, BH19, BH23,<br>BH24, BH25 | Methane        | 1%                           | Weekly                  | To be agreed with the Agency in<br>writing. |
|                                                                                                               | Oxygen         | No limit set                 |                         |                                             |
| BH8                                                                                                           | Methane        | 32.2%                        | Weekly                  | To be agreed with the Agency in<br>writing. |
|                                                                                                               | Carbon dioxide | 3.6%                         |                         |                                             |
|                                                                                                               | Oxygen         | No limit set                 |                         |                                             |
| BH9                                                                                                           | Methane        | 29.6%                        | Weekly                  | To be agreed with the Agency in<br>writing. |
|                                                                                                               | Carbon dioxide | 10.4%                        |                         |                                             |
|                                                                                                               | Oxygen         | No limit set                 |                         |                                             |
| BH18                                                                                                          | Methane        | 6.8%                         | Weekly                  | To be agreed with the Agency in<br>writing. |
|                                                                                                               | Carbon dioxide | 21.2%                        |                         |                                             |
|                                                                                                               | Oxygen         | No limit set                 |                         |                                             |
| BH1                                                                                                           | Carbon dioxide | 8.8%                         | Weekly                  | To be agreed with the Agency in<br>writing. |
| BH3                                                                                                           | Carbon dioxide | 3.1%                         | Weekly                  | To be agreed with the Agency in<br>writing. |
| BH4                                                                                                           | Carbon dioxide | 5.1%                         | Weekly                  | To be agreed with the Agency in<br>writing. |
| BH5                                                                                                           | Carbon dioxide | 1.5%                         | Weekly                  | To be agreed with the Agency in<br>writing. |
| BH6                                                                                                           | Carbon dioxide | 1.5%                         | Weekly                  | To be agreed with the Agency in<br>writing. |
| BH7                                                                                                           | Carbon dioxide | 10%                          | Weekly                  | To be agreed with the Agency in<br>writing. |
| BH10                                                                                                          | Carbon dioxide | 3.9 %                        | Weekly                  | To be agreed with the Agency in<br>writing. |
| BH11                                                                                                          | Carbon dioxide | 6.5%                         | Weekly                  | To be agreed with the Agency in<br>writing. |
| BH12                                                                                                          | Carbon dioxide | 6.6%                         | Weekly                  | To be agreed with the Agency in<br>writing. |
| BH13                                                                                                          | Carbon dioxide | 9.4%                         | Weekly                  | To be agreed with the Agency in<br>writing. |
| BH14                                                                                                          | Carbon dioxide | 3.5%                         | Weekly                  | To be agreed with the Agency in<br>writing. |
| BH15                                                                                                          | Carbon dioxide | 17.6%                        | Weekly                  | To be agreed with the Agency in<br>writing. |
| BH16                                                                                                          | Carbon dioxide | 11.4%                        | Weekly                  | To be agreed with the Agency in<br>writing. |
| BH17                                                                                                          | Carbon dioxide | 12.9%                        | Weekly                  | To be agreed with the Agency in<br>writing. |
| BH19                                                                                                          | Carbon dioxide | 11.2%                        | Weekly                  | To be agreed with the Agency in<br>writing. |
| BH23                                                                                                          | Carbon dioxide | 7.3%                         | Weekly                  | To be agreed with the Agency in<br>writing. |
| BH24                                                                                                          | Carbon dioxide | 1.5%                         | Weekly                  | To be agreed with the Agency in<br>writing. |
| BH25                                                                                                          | Carbon dioxide | 9.9%                         | Weekly                  | To be agreed with the Agency in<br>writing. |

\* - The limits specified take account of the agreed background concentrations as detailed in section 3 of the Landfill Gas Risk Assessment.

**Table S4.6 Landfill gas from capped surfaces - monitoring requirements**

| Monitoring point Ref. /description | Parameter            | Monitoring frequency | Other specifications                                                                                               | Monitoring Standard or method                                     |
|------------------------------------|----------------------|----------------------|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Permanently capped area            | Average Methane flux | Annually             | Where a rate of 0.001 mg/m <sup>2</sup> /second is exceeded appropriate measures must be taken to reduce the rate. | As per LFTGN07, or as otherwise agreed in writing by the Agency*. |
| Temporarily capped area            | Average Methane flux | Annually             | Where a rate of 0.1 mg/m <sup>2</sup> /second is exceeded appropriate measures must be taken to reduce the rate.   | As per LFTGN07, or as otherwise agreed in writing by the Agency*. |

Footnote \* If a cap has previously been shown compliant and there have been no significant physical changes in the gas management during the year, a detailed walkover survey with an FID can be used to demonstrate that the surface emissions are under control. If this survey shows no change in the pattern of methane emission, it may be used as the annual survey. The values for flux and total methane emissions measured in the previous year may be reported and a fresh flux box survey is not necessary. If the zone remains stable, the results of a full walkover survey may be accepted as the site report for a period of four years before a further quantitative flux box survey is required.

**Table S4.7 Landfill gas – other monitoring requirements**

| Emission point reference or source or description of point of measurement | Parameter                                                                                                                                                    | Monitoring frequency | Monitoring standard or method                                                                                           | Other specifications |
|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------------------------------------------|----------------------|
| In waste monitoring boreholes                                             | Methane<br>Carbon Dioxide<br>Oxygen<br>Temperature<br>Meteorological Data                                                                                    | Monthly              | To be agreed with the Agency in writing.                                                                                | None                 |
| Input to flare                                                            | Trace gas analysis<br><br>Parameters in accordance with LFTGN04 Guidance for monitoring trace components in landfill gas, Environment Agency, September 2004 | Annually             | In accordance with LFTGN04 Guidance for monitoring trace components in landfill gas, Environment Agency, September 2004 | None                 |

**Table S4.8 Leachate– other monitoring requirements**

| Emission point reference or source or description of point of measurement | Parameter                                                                                                                                         | Monitoring frequency | Monitoring standard or method                                                                                         | Other specifications |
|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------|----------------------|
| LC1, LC2, LC3, LC4, LC5, LC6                                              | Alkalinity, pH, ammoniacal nitrogen, calcium, chloride, magnesium, potassium, sodium, sulphate, BOD, COD, TOC, TON                                | Quarterly            | To be agreed with the Agency in writing                                                                               | None                 |
| LC1, LC2, LC3, LC4, LC5, LC6                                              | Cadmium, chromium, copper, iron, lead, manganese, nickel, zinc                                                                                    | Annually             | To be agreed with the Agency in writing                                                                               | None                 |
| Representative sample from each cell                                      | List 1 screen<br>Parameters in accordance with Appendix 6, LFTGN01 Hydrogeological Risk Assessments for Landfills, Environment Agency, March 2003 | Annually             | In accordance with Appendix 6, LFTGN01 Hydrogeological Risk Assessments for Landfills, Environment Agency, March 2003 | None                 |
| LC1, LC2, LC3, LC4, LC5, LC6                                              | Depth to base of monitoring point                                                                                                                 | Annually             | To be agreed with the Agency in writing                                                                               | None                 |

**Table S4.9 Groundwater – other monitoring requirements**

| Emission point reference or source or description of point of measurement | Parameter                                                                                                                                  | Monitoring frequency | Monitoring standard or method           | Other specifications |
|---------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------------------------|----------------------|
| GW1, GW2, GW3, GW4, GW5, GW6                                              | pH, dissolved oxygen, ammoniacal nitrogen, electrical conductivity, chloride                                                               | Monthly              | To be agreed with the Agency in writing | None                 |
| GW1, GW2, GW3, GW4, GW5, GW6                                              | Calcium, cadmium, chromium, copper, iron, magnesium, manganese, nickel, lead, zinc, COD, sulphate, TON, potassium, sodium, TOC, alkalinity | Quarterly            | To be agreed with the Agency in writing | None                 |

**Table S4.10 Particulate matter in ambient air - limits and monitoring requirements**

| Monitoring Point Ref. /Description                                                                                                       | Parameter                    | Limit (Including Unit)     | Reference Period | Monitoring Frequency | Monitoring Standard or Method           |
|------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------------------------|------------------|----------------------|-----------------------------------------|
| Dust 1 – mobile (location determined by operations),<br>Dust 2 – Oak Cottages/Oaks Farm<br>Dust 3- Catteralls/Pinfold Industrial Estates | Gross dust depositional rate | 200 mg/m <sup>2</sup> /day | 24 hour total    | Quarterly            | To be agreed with the Agency in writing |

## Schedule 5 - Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

**Table S5.1 Reporting of monitoring data**

| Parameter                                                                   | Emission or monitoring point/reference              | Reporting period      | Period begins                           |
|-----------------------------------------------------------------------------|-----------------------------------------------------|-----------------------|-----------------------------------------|
| Leachate levels<br>As required by condition 3.6.1                           | LC1, LC2, LC3, LC4, LC5, LC6                        | Quarterly             | 17/08/2004                              |
| Emissions to air<br>Parameters as required by condition 3.6.1               | Flare<br>Gas engine                                 | Annually              | 17/08/2004<br>From date of installation |
| Emissions to water<br>Parameters as required by condition 3.6.1             | P2                                                  | Quarterly             | 28/09/2006                              |
| Groundwater<br>Parameters as required by condition 3.6.1                    | GW1, GW2, GW3, GW4, GW5, GW6                        | Quarterly             | 17/08/2004                              |
| Landfill gas surface emissions<br>Parameters as required by condition 3.6.1 | Temporarily and permanently capped areas            | Annually              | 07/03/2007                              |
| Particulate matter<br>Parameters as required by condition 3.6.1             | Dust 1, Dust 2, Dust 3                              | Quarterly             | 17/08/2004                              |
| Landfill gas lateral migration<br>Parameters as required by condition 3.6.1 | BH1, BH3 to BH19, BH23 to BH25                      | Monthly               | 17/08/2004                              |
| Other Landfill gas monitoring<br>Parameters as required by condition 3.6.1  | In-waste gas monitoring boreholes<br>Inlet to flare | Quarterly<br>Annually | 07/03/2007<br>07/03/2007                |
| Other leachate monitoring<br>Parameters as required by condition 3.6.1      | LC1, LC2, LC3, LC4, LC5, LC6                        | Quarterly             | 17/08/2004                              |
| List 1 Screen                                                               | Representative sample from each cell                | Annually              | 17/08/2004                              |

**Table S5.2: Annual production/treatment**

|                                                                                                                                |                              |
|--------------------------------------------------------------------------------------------------------------------------------|------------------------------|
| Leachate:<br>Disposed of off site;<br>Disposed of to any onsite effluent treatment plant;<br>Recirculated into the waste mass. | Cubic metres/year            |
| Surface water and/ or groundwater:<br>Disposed of off site;<br>Disposed of to any onsite effluent treatment plant.             | Cubic metres/year            |
| Landfill gas:<br>combustion in flares;<br>combustion in gas engines;<br>Other methods of gas utilisation.                      | Normalised cubic metres/year |

**Table S5.3 Performance Parameters**

| Parameter                                      | Frequency of assessment | Annual total | Unit               |
|------------------------------------------------|-------------------------|--------------|--------------------|
| Energy used (including for leachate treatment) | Annually                |              | MWh of electricity |

| <b>Table S5.4 Reporting Forms</b>                 |                                                                                      |                     |
|---------------------------------------------------|--------------------------------------------------------------------------------------|---------------------|
| <b>Media/parameter</b>                            | <b>Reporting Format</b>                                                              | <b>Date of Form</b> |
| Leachate                                          | Form leachate 1 or other reporting format to be agreed in writing with the Agency    | 07/03/2007          |
| Air                                               | Form Air 1 or other reporting format to be agreed in writing with the Agency         | 07/03/2007          |
| Controlled water                                  | Form Water 1 or other reporting format to be agreed in writing with the Agency       | 07/03/2007          |
| Groundwater                                       | Form Groundwater 1 or other reporting format to be agreed in writing with the Agency | 07/03/2007          |
| Landfill gas                                      | Form LFG 1 or other reporting format to be agreed in writing with the Agency         | 07/03/2007          |
| Particulate matter                                | Form Particulate 1 or other reporting format to be agreed in writing with the Agency | 07/03/2007          |
| Waste Return                                      | Waste Return Form RATS2E                                                             | N/A                 |
| Landfill topographical surveys and interpretation | Reporting format to be agreed in writing with the Agency                             | N/A                 |

## Schedule 6 - Notification

This page outlines the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the PPC Regulations.

### Part A

|                                |  |
|--------------------------------|--|
| Permit Number                  |  |
| Name of operator               |  |
| Location of Installation       |  |
|                                |  |
| Time and date of the detection |  |

#### **(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or fugitive emission which has caused, is causing or may cause significant pollution**

| <b>To be notified within 24 hours of detection</b>               |  |
|------------------------------------------------------------------|--|
| Date and Time of the event                                       |  |
| Reference or description of the location of the event            |  |
| Description of where any release into the environment took place |  |
| Substances(s) potentially released                               |  |
| Best estimate of the quantity or rate of release of substances   |  |
| Measures taken, or intended to be taken, to stop any emission    |  |
| Description of the failure or accident.                          |  |

#### **(b) Notification requirements for the breach of a limit**

| <b>To be notified within 24 hours of detection unless otherwise specified below</b> |  |
|-------------------------------------------------------------------------------------|--|
| Emission point reference/ source                                                    |  |
| Parameter(s)                                                                        |  |
| Limit                                                                               |  |
| Measured value and uncertainty                                                      |  |
| Date and time of monitoring                                                         |  |
| Measures taken, or intended to be taken, to stop the emission                       |  |

| Time periods for notification following detection of a breach of a limit |                     |
|--------------------------------------------------------------------------|---------------------|
| Parameter                                                                | Notification period |
| None                                                                     |                     |
|                                                                          |                     |

| (c) Notification requirements for the detection of any significant adverse environmental effect |  |
|-------------------------------------------------------------------------------------------------|--|
| To be notified within 24 hours of detection                                                     |  |
| Description of where the effect on the environment was detected                                 |  |
| Substances(s) detected                                                                          |  |
| Concentrations of substances detected                                                           |  |
| Date of monitoring/sampling                                                                     |  |

### Part B to be supplied as soon as practicable

|                                                                                                                                                        |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Any more accurate information on the matters for notification under Part A.                                                                            |  |
| Measures taken, or intended to be taken, to prevent a recurrence of the incident                                                                       |  |
| Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission |  |
| The dates of any unauthorised emissions from the installation in the preceding 24 months.                                                              |  |

|           |  |
|-----------|--|
| Name*     |  |
| Post      |  |
| Signature |  |
| Date      |  |

- authorised to sign on behalf of A D Waste Limited

## Schedule 7 - Interpretation

*“Accident”* means an accident that may result in pollution.

*“Annually”* means once every Year.

*“Application”* means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 4 to the PPC Regulations

*“Authorised Officer”* means any person authorised by the Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in Section 108(4) of that Act.

*“Background concentration”* means such concentration of that substance as is present in:

- For emissions to surface water, the surface water quality up-gradient of the site; or
- For emissions to sewer, the surface water quality up-gradient of the sewage treatment works discharge; or
- For emissions of landfill gas, the ground or air outside the site and not attributable to the site.

*“Construction Proposals”* means written information, at a level of detail appropriate to the complexity and pollution risk, on the design, specifications of materials selected, stability assessment (where relevant) and the construction quality assurance (CQA) programme in relation to the New Cell or Landfill Infrastructure.

*“CQA Validation Report”* means the final “as built” construction and engineering details of the New Cell or of the Landfill Infrastructure. It must provide a comprehensive record of the construction and must include, where relevant:

- The results of all testing required by the CQA programme - this must include the records of any failed tests with a written explanation, details of the remedial action taken, referenced to the appropriate secondary testing;
- Plans showing the location of all tests;
- “As-built” plans and sections of the works;
- Copies of the site engineer’s daily records;
- Records of any problems or non-compliances and the solution applied;
- Any other site specific information considered relevant to proving the integrity of the New Cell or Landfill Infrastructure;
- Validation by a qualified person that all of the construction has been carried out in accordance with the Construction Proposals.

*“Fugitive emission”* means an emission to air, water or land from the activities which is not controlled by an emission or background concentration limit.

*“Groundwater Regulations”* means the Groundwater Regulations SI 1998 No. 2746, and words and expressions used in this permit which are also used in the Regulations shall have the same meanings as in those Regulations.

*“Landfill Infrastructure”* means any specified element of the:

- permanent capping;
- temporary capping (i.e. engineered temporary caps not cover materials);
- leachate abstraction systems;
- leachate transfer, treatment and storage systems;
- surface water drainage systems;
- leachate monitoring wells;
- groundwater monitoring boreholes;
- landfill gas monitoring boreholes;
- landfill gas management systems;

within the site.

*“Landfill Regulations”* means the Landfill (England and Wales) Regulations SI 2002 No. 1559, and words and expressions used in this permit which are also used in the Regulations shall have the same meanings as in those Regulations.

*“Land Protection Guidance”* means Agency guidance “H7 - Guidance on the protection of land under the PPC Regime: Application site report and site protection monitoring programme”.

*“Liquids”* means any liquid other than leachate within the engineered landfill containment system.

*“LFTGN 05”* means Environment Agency Guidance for monitoring enclosed landfill gas flares, September 2004.

*“LFTGN 08”* means Environment Agency Guidance for monitoring landfill gas engines, September 2004.

*“New Cell”* means any new cell, part of a cell or other similar new area of the site where waste deposit is to commence after issue of this permit and can comprise:

- groundwater under-drainage system;
- permanent geophysical leak location system;
- leak detection layer;
- sub-grade;

- barriers;
- liners;
- leachate collection system;
- leachate abstraction system;
- separation bund/layer;
- cell or area surface water drainage system;
- side wall subgrade and containment systems;

for the New Cell.

"*No impact*" means that the change made to the construction process will not affect the agreed design criteria, specification or performance in a way that has a negative effect.

"notify without delay" and "notified without delay" means that a telephone call can be used, whereas all other reports and notifications must be supplied in writing, either electronically or on paper.

"*PPC Regulations*" means the Pollution, Prevention and Control (England and Wales) Regulations SI 2000 No.1973 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

"*Quarter*" means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

"*Relevant person*" and "*relevant conviction*" shall have the meanings given to them in the Environmental Protection Act 1990

"*Review of the Hydrogeological Risk Assessment*" means a written review of the hydrogeological risk assessment included in the Application, together with any other parts of the Application that addressed the requirements of the Groundwater Regulations. The review shall assess whether the activities of disposal or tipping for the purpose of disposal of waste authorised by the permit continue to meet the requirements of the Groundwater Regulations

"*Site Protection and Monitoring Programme*" means a document which meets the requirements for Site Protection and Monitoring Programmes described in the Land Protection Guidance.

"*Technically competent management*" and "*technical competence*" shall have the meanings given to them in the Environmental Protection Act 1990.

"waste code" means the six digit code referable to a type of waste in accordance with the List of Wastes (England) Regulations 2005, or List of Wastes (Wales) Regulations 2005, List of Wastes (Northern Ireland) Regulations 2005 (as amended), or The Special Waste Amendment (Scotland) Regulations 2004 as appropriate, and in relation to hazardous waste, includes the asterisk

"*Year*" means calendar year ending 31 December.

Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means the standards included in Environment Agency Guidance for Monitoring Enclosed Landfill Gas Flares LFTGN 05 or Guidance for Monitoring Landfill Gas Engine Emissions LFTGN 08.

END OF PERMIT