



**ENVIRONMENT  
AGENCY**

## **Variation Notice with introductory note**

Pollution Prevention and Control (England & Wales) Regulations 2000

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Nantycaws Landfill Site

CWM Environmental Ltd  
Llanddarog Road  
Nantycaws  
Carmarthen  
Carmarthenshire  
SA32 8BG

Variation Notice Number  
DP3636LJ

Permit number  
CP3735PB

# Installation Name

## Permit Number CP3735PB

### 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 part of an installation. The notice comprises schedule 1 containing conditions to be deleted, schedule 2 conditions to be amended and schedule 3 conditions to be added.

Nantycaws Landfill site is located approximately 8 km to the east of Carmarthen and 1.5 km to the south-east of the small village of Nantycaws. The site is permitted to accept non-hazardous waste. Cells 1, 2, 3 and 4 have been completed although only part of Cell 1 has been capped, with the remaining areas of these cells being temporarily capped. Cell 5 is currently operational.

The Operator made an application to substantially vary the existing permit to develop Phase 3, a northern extension to the existing non-hazardous landfill facility. Landfill operations within the extension will take place in four cells, which will be created through general earthworks extraction and engineering processes. The cells will be filled progressively over the life of the development. The base of the landfill would be engineered with a composite lining system that would be installed progressively as required by the landfill operations. On the completion of filling in each cell the waste would be capped and the cell restored. Landfill gas will be collected and utilised.

The variation has been granted subject to conditions.

Note that the Permit requires the submission of certain information to the Agency (see Sections 4 and 5). In addition, the Agency has the power to seek further information at any time under regulation 28 to the PPC Regulations provided that it acts reasonably.

#### Status Log of the Permit

Detail	Date	Response Date
Application CP3735PB	Received 03/05/2004	---
Response to request for information	Request dated 22/11/2004	Response dated 15/12/2004
Permit determined	Issued 02/08/2005	---
Variation Application DP3934LP	Received 24/03/2006	---
Permit varied DP3934LP	01/12/2006	---
Substantial Variation Application DP3636LJ	Received 02/06/2006	---
Response to request for information	Request dated 06/09/2006	Response dated 10/10/2006
Response to request for information	Request dated 29/11/2006	Response dated 22/01/2007
Revised Drawing ESID11 Dated April 2006 . Revision 2.	30/03/2007	---
Permit varied & consolidated DP3636LJ	28/02/2008	---

#### Other PPC Permits relating to this installation

Operator	Permit Number	Date of Issue
Novera Energy Generation No. 2 Ltd (for landfill Gas Utilisation Plant)	LP3038SU	28/04/05

**Permit**

Pollution Prevention and Control (England and Wales) Regulations 2000  
Landfill (England and Wales) Regulations 2002

## Variation Notice

Permit number

**CP3735PB**

Variation number

**DP3636LJ**

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

**CWM Environmental Ltd** ("the Operator"),

of/ whose Registered Office (or principal place of business) is

**Nantycaws Landfill site**

**Llanddarog Road**

**Nantycaws**

**Carmarthen**

**Carmarthenshire**

**SA32 8BG**

Company registration number **02640102**

to operate an installation at

**Nantycaws Landfill site**

**Llanddarog Road**

**Nantycaws**

**Carmarthen**

**Carmarthenshire**


**SA32 8BG**

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

The notice shall take effect from 28 February 2008

Signed

Date

	27 February 2008
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**Barbara Tate, PPC Team Leader**

Authorised to sign on behalf of the Agency

Superseded or Partially Superseded Licences/Authorisations/Consents relating to this installation			
Holder	Reference Number	Date of Issue	Fully or Partially Supersede
CWM Environmental Ltd	Waste Management Licence SWW/160L Reference Number EAWML 34144	28/02/1997	Fully superseded
CWM Environmental Ltd	Consent to Discharge Reference Number BP0266401	17/14/1997	Fully superseded

## **Schedule 1 – Conditions to be deleted**

All conditions and schedules are deleted

## **Schedule 2 – Conditions to be amended**

None

## **Schedule 3 – Conditions to be added**

The following conditions are added to the permit:

# **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 2 August 2005 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 thus 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.

## **1.6 Multiple Operator installations**

- 1.6.1 The following conditions apply as a result of interactions between the Permits covering this installation:
- 1.6.2 The Operator of the Landfill permit CP3735PB shall be responsible for the extraction of gas from the landfill and all the gas supply pipe work up until the point at which it reaches the gas engine compound boundary. Responsibility shall then transfer to the holder of permit LP3038SU. The Operator of the Landfill also holds responsibility for the collected condensate that is returned to the leachate handling system contained within the boundary of permit CP3735PB and the flaring of landfill gas that cannot be utilised within the gas utilisation plant authorised by permit LP3038SU.
- 1.6.3 Both Operators on the site shall co-operate to ensure the safe extraction and combustion of the landfill gas using the systems they have agreed and set out in the application.

## **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**

- 2.4.1 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**

- 2.6.1 The operations specified in Schedule 1 Table S1.4B shall not commence until the measures specified in that table have been completed.

## **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
  - (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.
  - (k) Any code beginning with 07 05 and 16 03 shall exclude waste medicinal products and pharmaceutically active waste materials arising from their manufacture.
- 2.8.2 Gypsum and other high sulphate bearing waste shall only be disposed of in cells where no biodegradable waste is accepted. Wastes disposed of in a cell with gypsum and other high sulphate bearing wastes must meet the relevant waste acceptance criteria.
- 2.8.3 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.
- 2.8.4 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.
- 2.8.5 The Operator on accepting each delivery of waste shall provide a receipt to the person delivering it.
- 2.8.6 The total quantity of waste that shall be deposited in the landfill shall be limited by the pre-settlement levels shown on drawing ESID4.
- 2.8.7 The quantity of waste that is deposited in the landfill in any year shall not exceed the limits in Schedule 1 Table S1.5.
- 2.8.8 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 Table S4.1 of Schedule 4 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 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 Tables S4.2, S4.3 and S4.4 of Schedule 4.
- 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 Table S4.5 of Schedule 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 set out in schedule 4, table S4.6 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 S4.9;
  - (b) Point source emissions specified in Tables S4.2, S4.3 and S4.4;
  - (c) Groundwater specified in Tables S4.5 and S4.11;
  - (d) Landfill gas specified in Tables S4.6, S4.7 and S4.8; and
  - (e) Surface water 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.

### **3.7 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; and
  - (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 Table S5.1 of Schedule 5;
  - (b) for the reporting periods specified in Table S5.1 of Schedule 5 and using the forms specified in Table S5.4 of Schedule 5; 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 time scales:
- (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 implementing 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**

<b>Activity listed in Schedule 1 of the PPC Regulations</b>	<b>Description of specified activity</b>	<b>Limits of specified activity</b>
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 of leachate in a facility prior to disposal or recovery.	Leachate arising from the permitted landfill.
Landfill gas management.	Flaring of landfill gas	Landfill gas arising from the permitted 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.
Fuel storage.	Storage of fuel for operation of plant and equipment.	From fuel storage tank / bowser to point of discharge / disposal off site.



Table S1.2 Operating Techniques

Description	Parts	Date
Application	The response to questions 1.3, 1.4, 2.1, 2.2, 2.3, 2.4, 2.5, 2.7, 2.8, 2.9, 2.11 and 3.1 in Part B of the application.	Received 03/05/2004
Further Information	Letter from SLR Consulting Ltd, Reference 4B-610-002 dated 14 December 2004	Received 15/12/04
Improvement Item Reports	Document entitled "Noise monitoring plan in compliance with the Pollution, Prevention & Control (PPC) Permit" dated March 2006  Environmental Management and Monitoring Plan dated March 2006. SLR Reference: 407.0610.00009  Gas Management Plan March 2006. SLR Reference 407.0610.00009  Landfill Gas Generation and Risk Assessment dated March 2006. SLR Ref.: 4B-610-002/LFGRA_Update  Odour Impact Assessment March 2006. SLR Reference 407.0610.00009  Document entitled PPC Permit Condition 1.4.1.8' dated May 2006. SLR Consulting Ltd, Reference 407.0610.00011	Various
Variation Application	The response to questions 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4, 2.5, 2.7.1, 2.7.2, 2.7.3, 2.8, 2.9, 2.10, 2.11, 2.12, 3.1, 4.1, 4.2 and 4.3 in Part C of the application.	Received: 24/03/2006
Further Information	Letter from SLR Consulting Ltd, Reference 407/0610/00008/LM/310506 dated 31 May 2006	Received: 01/06/2006
Further Information	Revised drawing HRA1 dated July 2006	Received: 04/07/2006
Further Information	Email from Lee Miller dated 26/10/06 including drawings ESID7C dated February 2006 (revised September 06) and Drawing ESID 11 dated October 2006.	Received: 26/10/2006
Variation Application	The response to questions 1.1, 1.2, 1.3, 1.4, 2.1, 2.2, 2.3, 2.4, 2.5, 2.7.1, 2.7.2, 2.7.3, 2.8, 2.9, 2.10, 2.11, 2.12, 3.1, 4.1, 4.2 and 4.3 in Part C of the application.	Received: 02/06/2006
Responses to Schedule 4 Notices	Letter from SLR Consulting Ltd, Reference 407/0610/00011/LM/101006 Dated 10 October 2006.	Received: 10/10/2006
	Letter from SLR Consulting Ltd, Reference 407/0610/00011/LM/221007. Dated 22 January 2007.	Received: 22/01/2007
Further Information	Drawing ESID11 Date April 2006. Revision 2.	Received: 30/03/2007
Improvement Programme	All reports and plans submitted and agreed with the Agency, as part the Improvement Programme detailed in Table S1.3 shall form part of the site's operating techniques.	See Improvement Programme in Table S1.3

Table S1.3 Improvement Programme Requirements

Reference	Requirement	Date
1.4.1.14	The Operator shall review the number and location of surface water management monitoring points. The location of monitoring points must ensure that surface water can be adequately characterised both upstream and downstream of any discharge to controlled waters. A monitoring point must be provided within the Afon Y Bantwen above the confluence with the perimeter ditch. The Operator shall also provide site specific procedures to monitor the flow rate at the final discharge point to the Afon Y Bantwen and produce a contingency plan in the event that the flow rate exceeds 5 litres per second or 432 cubic metres a day. Any flow management structure shall be designed and maintained to enable daily volume and instantaneous flow rate of the discharge to be measured or determined as required.	20/08/08
1.4.1.15	The Operator shall review the effectiveness of bird controls employed at the site and produce a bird management plan. The plan should detail how the specific techniques employed will ensure gull and corvid numbers at the permitted installation are minimised and prevent scavenging at the working face. The plan should include the operational hours of bird control employed and an action plan to be implemented in the event of excessive bird numbers on site. The plan shall also consider the use of trained birds of prey. The plan should be reviewed on an annual basis. The Operator shall implement any improvements or measures as agreed in writing with the Agency	20/06/08
1.4.1.16	The Operator shall review the site procedures to deal with pest and vermin infestations and produce a pest control management plan. The plan should include site procedures to prevent, monitor and eradicate any infestation of pests and vermin. The plan shall also include measures to be taken in the event of any complaints of fly infestations made by the Agency or other parties. This shall include the collection of fly samples from key locations to confirm the type/species of fly in order to determine if the landfill is the source of flies. The plan should be reviewed on an annual basis. The Operator shall implement any improvements or measures as agreed in writing with the Agency.	30/07/08
1.4.1.17	The Operator shall produce a restoration plan for all cells that have not been finally capped and restored. The plan shall include: <ul style="list-style-type: none"> <li>• a detailed restoration design;</li> <li>• design details;</li> <li>• a phasing plan(s);</li> <li>• a soil management plan;</li> <li>• details of how the implementation will be managed including a timetable of works;</li> <li>• an aftercare plan.</li> </ul> The plan shall be produced in accordance with Agency technical guidance on capping and restoration of landfills.	30/08/08
1.4.1.18	The Operator shall propose emission limits for Sulphur Dioxide from the flare stack as specified in table S4.2.	20/03/08

**Table S1.3 Improvement Programme Requirements**

1.4.1.19	<p>a) The Operator shall install two leachate monitoring wells per cell in Cells 1 to 4 (inclusive).</p> <p>b) Prior to their installation the Operator shall submit to the Agency, for approval, a CQA plan detailing the design and specification, scale drawings and locations for each proposed monitoring borehole.</p> <p>c) Within fourteen days of installation the Operator shall provide to the Agency a CQA report that includes the following details:</p> <ul style="list-style-type: none"> <li>• As built drawings of the monitoring wells.</li> <li>• As built location plan of monitoring wells. The completion levels of all wells must be surveyed relative to Ordnance Datum.</li> <li>• Maintenance programme and deadlines for the repair and replacement of each monitoring well.</li> </ul> <p>d) Within twenty one days of installation the Operator shall provide to the Agency a monitoring report profiling leachate levels across the base of each cell. The report should also include an interpretation of the results.</p>	<p>a) 01/09/08</p> <p>b) 01/08/08</p> <p>c) 15/09/08</p> <p>d) 22/09/08</p>
<p>All new monitoring wells installed shall be incorporated into the site monitoring plan and monitored and reported in accordance with the requirements of tables S4.9 and Schedule 5.</p>		
1.4.1.20	<p>a) The Operator shall install two additional upstream groundwater monitoring boreholes '3/8' and '3/9' to the east and west of borehole 3/4 as per the application. Prior to their installation the Operator shall submit to the Agency, for approval, a CQA plan detailing the design and specification, scale drawings and locations for each proposed monitoring borehole.</p> <p>b) Within fourteen days of installation the Operator shall provide to the Agency a CQA report that includes the following details:</p> <ul style="list-style-type: none"> <li>• As built drawings of the groundwater monitoring boreholes.</li> <li>• As built location plan of groundwater monitoring boreholes. The headworks completion levels of all boreholes must be surveyed relative to Ordnance Datum.</li> <li>• Maintenance programme and deadlines for its repair and replacement.</li> </ul> <p>c) All new boreholes installed shall be incorporated into the site monitoring plan and monitored and reported in accordance with the requirements of table S4.11 and Schedule 5. The Operator shall implement any improvements or measures as agreed in writing with the Agency.</p>	<p>a) 01/05/08</p> <p>b) 15/05/08</p> <p>c) 01/05/08</p>

**Table S1.3 Improvement Programme Requirements**

1.4.1.21	<p>The Operator shall submit and implement a structured odour management plan. The plan shall include as a minimum:</p> <ul style="list-style-type: none"> <li>• Control measures to prevent or control odour.</li> <li>• A demonstration/justification that there will not be an odour problem from the emissions under normal conditions.</li> <li>• Identification of the actions to be taken in the event of abnormal events or conditions which might lead to odour, or potential odour problems.</li> <li>• An understanding of the impact in the event of abnormal events or conditions, for example the failure of a landfill gas flare. This may require modelling the dispersion of odours under such circumstances.</li> <li>• Olfactory or other monitoring to be undertaken. This shall include monitoring frequency and location.</li> <li>• Communication with complainants if an odour problem arises or is likely to arise. Your procedures should ensure that a record is kept of any complaints received, what they relate to (source/operation) and the remedial action taken. The types and source of odorous substances used or generated, relevant release points and any monitoring undertaken.</li> <li>• Continued odour problems should also trigger a review of the gas extraction system and then ambient air monitoring, potentially using methane as an indicator.</li> <li>• Odour control is not a once-off activity and requires a constant re-evaluation of control techniques and this must form part of the odour management plan.</li> </ul>	31/03/2008
1.4.22	<p>The Operator shall provide: site specific procedures to monitor the flow rate at the discharge point to the Nantycaws Stream.(SW206) and produce a contingency plan in the event that the flow rate exceeds the permitted limits. Any flow management structure must be designed and maintained to enable the daily volume and instantaneous flow rate of the discharge to be measured or determined as required. The Operator shall also review all the emission limits for monitoring point SW206 using actual monitoring data (at least six samples) to ensure no deterioration of water quality in the receiving water.</p>	30/08/08
1.4.23	<p>The Operator shall provide evidence or obtain an MCERTS site conformity inspection certificate for all flow monitoring equipment utilised at the site.</p>	31/12/08
1.4.24	<p>In accordance with the requirements of Agency regulatory guidance 'Understanding the meaning of "Operator" under IPPC' the Operator shall provide documentary evidence relating to the management and control of the landfill gas flare to demonstrate that they have the authority and ability to:</p> <ol style="list-style-type: none"> <li>a) Manage the operation of the landfill gas flare and associated gas extraction infrastructure at the installation (i.e. have day-to-day control of the flaring operation) including the manner and rate of operation;</li> <li>b) Ensure compliance with any relevant permit conditions;</li> <li>c) Have the power to employ and dismiss the key staff who manage this equipment;</li> <li>d) Make investment decisions with regard to this infrastructure;</li> <li>e) Ensure that emergency procedures are followed should a serious incident occur;</li> <li>f) Control physical access to the landfill gas flare.</li> </ol> <p>The Operator shall also provide a detailed plan clearly identifying the installation boundaries for both the landfill gas compound (operated by Novera Energy Generation No.2 Ltd) and flare. The plan should provide sufficient detail to determine responsibilities for all connecting pipe work.</p>	01/05/08

\* Note: Improvement items 1.4.1.1 to 1.4.1.13 have been removed as they have been complied with or superseded. Please refer to previous permit documentation for details.

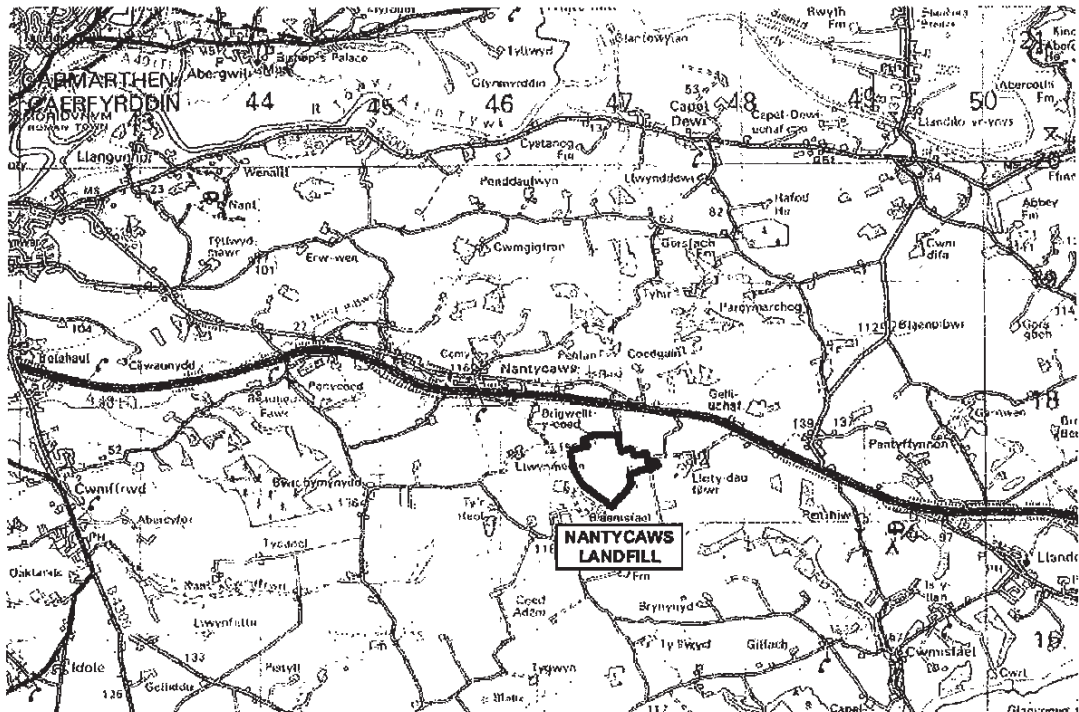
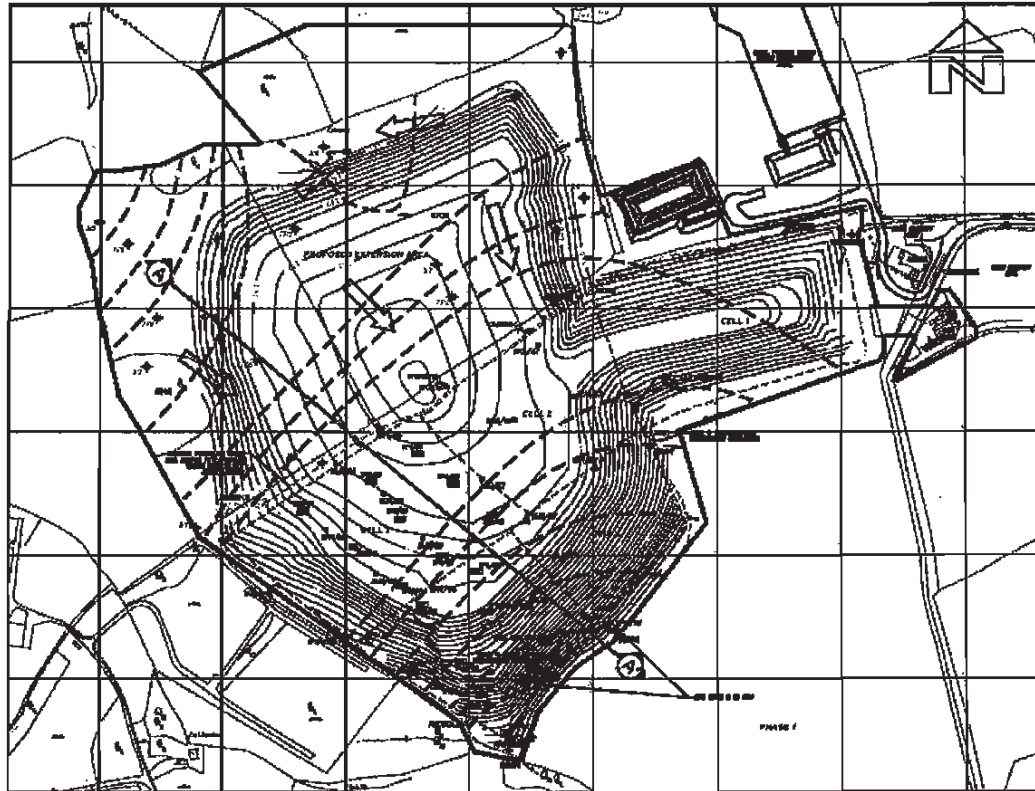
**Table S1.4B Pre-operational Measures for Future Development**

Reference	Operation	Pre-operational Measures
1	Prior to the deposit of any leachate with the Leachate Holding Lagoon identified on plan HRA1 dated July 2006.	<p>The Operator shall submit:</p> <ul style="list-style-type: none"> <li>(a) a plan confirming the accurate location of the lagoon under drain discharge point. The discharge point shall be labelled 'UD2'</li> <li>(b) a report detailing the inspection regime to monitor the depth of groundwater within the manhole. The report shall detail a site specific trigger level based on depth of water and actions to be taken should the trigger level be exceeded.</li> <li>(c) A Construction Quality Assurance Validation report for agreement.</li> </ul>
2	Prior to any construction that may affect the integrity or lead to the abandonment or replacement of boreholes and monitoring wells.	<p>The Operator shall submit:</p> <ul style="list-style-type: none"> <li>a) Detailed site procedures for the abandonment or decommissioning of any redundant boreholes or monitoring wells. These must be sealed and capped in a manner that prevents any confusion with active monitoring points.</li> <li>b) A revised Environmental Management and Monitoring Programme, drawings and monitoring-point register. The plan shall be amended to document the abandonment clearly.</li> </ul>
3	Prior to the construction of any new landfill cells.	The Operator shall construct a surface water management system to ensure that any contaminated surface waters are intercepted and channelled away from construction and operational areas. Surface water shall only be treated and discharged via emission point SW205 or SW206 unless otherwise agreed in writing with the Environment Agency.
4	Prior to the construction of any new landfill cells	<p>The design of all future cells to be constructed at the site shall include the following design details and only varied based on justification agreed in writing with the Environment Agency:</p> <ul style="list-style-type: none"> <li>• At least two level monitoring points in addition to a collection sump should be provided for each hydraulically separated cell of less than 5 hectares in size. For larger cells the number of monitoring points shall be agreed in writing with the Agency.</li> <li>• A minimum of three target pads should be installed in each cell; one in preparation for retro-drilling to replace a failed extraction well and a minimum of two target pads in preparation for retro-drilling should both monitoring wells require replacement.</li> <li>• The use of upslope risers rather than vertical extraction wells should be considered where appropriate.</li> </ul> <p>The Operator shall implement any improvements or measures as agreed in writing with the Agency.</p>

**Table S1.5 Annual Waste Input Limits**

Category	Limit Tonnes/ Year
Non-hazardous Waste	150,000
Inert Waste	20,000 (for restoration materials)

## Schedule 2 - Site plan





## Schedule 3 - List of permitted wastes

Code	Description
<b>1</b>	<b>WASTES RESULTING FROM EXPLORATION, MINING, QUARRYING, AND PHYSICAL AND CHEMICAL TREATMENT OF MINERALS</b>
<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>2</b>	<b>WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING</b>
<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

- 02 07** wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)
  - 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
- 3 WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD**
  - 03 01 wastes from wood processing and the production of panels and furniture**
    - 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
  - 03 03 wastes from pulp, paper and cardboard production and processing**
    - 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
- 4 WASTES FROM THE LEATHER, FUR AND TEXTILE INDUSTRIES**
  - 04 01 wastes from the leather and fur industry**
    - 04 01 01 fleshings and lime split wastes
    - 04 01 02 liming waste
    - 04 01 04 tanning liquor containing chromium
    - 04 01 05 tanning liquor free of chromium
    - 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
  - 04 02 wastes from the textile industry**
    - 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
- 5 WASTES FROM PETROLEUM REFINING, NATURAL GAS PURIFICATION AND PYROLYTIC REATMENT OF COAL**
  - 05 01 wastes from petroleum refining**
    - 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
  - 05 06 wastes from the pyrolytic treatment of coal**
    - 05 06 04 waste from cooling columns
  - 05 07 wastes from natural gas purification and transportation**
    - 05 07 02 wastes containing sulphur
- 6 WASTES FROM INORGANIC CHEMICAL PROCESSES**
  - 06 03 wastes from the MFSU of salts and their solutions and metallic oxides**
    - 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
  - 06 05 sludges from on-site effluent treatment**
    - 06 05 03 sludges from on-site effluent treatment other than those mentioned in 06 05 02
  - 06 06 wastes from the MFSU of sulphur chemicals, sulphur chemical processes and desulphurisation processes**
    - 06 06 03 wastes containing sulphides other than those mentioned in 06 06 02
  - 06 08 wastes from the MFSU of silicon and silicon derivatives**
    - 06 08 02 wastes containing chlorosilanes
  - 06 09 wastes from the MSFU of phosphorous chemicals and phosphorous chemical processes**



- 06 09 02 phosphorous slag
- 06 09 04 calcium-based reaction wastes other than those mentioned in 06 09 03
- 06 11 wastes from the manufacture of inorganic pigments and opacifiers**
- 06 11 01 calcium-based reaction wastes from titanium dioxide production
- 06 13 wastes from inorganic chemical processes not otherwise specified**
- 06 13 03 carbon black
  
- 7 WASTES FROM ORGANIC CHEMICAL PROCESSES**
- 07 01 wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals**
- 07 01 12 sludges from on-site effluent treatment other than those mentioned in 07 01 11
- 07 02 wastes from the MFSU of plastics, synthetic rubber and man-made fibres**
- 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 16 wastes containing silicones
- 07 03 wastes from the MFSU of organic dyes and pigments (except 06 11)**
- 07 03 12 sludges from on-site effluent treatment other than those mentioned in 07 03 11
- 07 04 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**
- 07 04 12 sludges from on-site effluent treatment other than those mentioned in 07 04 11
- 07 05 wastes from the MFSU of pharmaceuticals**
- 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
- 07 06 wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics**
- 07 06 12 sludges from on-site effluent treatment other than those mentioned in 07 06 11
- 07 07 wastes from the MFSU of fine chemicals and chemical products not otherwise specified**
- 07 07 12 sludges from on-site effluent treatment other than those mentioned in 07 07 11
  
- 8 WASTES FROM THE MANUFACTURE, FORMULATION, SUPPLY AND USE (MFSU) OF COATINGS (PAINTS, VARNISHES AND VITREOUS ENAMELS), ADHESIVES, SEALANTS AND PRINTING INKS**
- 08 01 wastes from MFSU and removal of paint and varnish**
- 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
- 08 01 20 aqueous suspensions containing paint or varnish other than those mentioned in 08 01 19
- 08 02 wastes from MFSU of other coatings (including ceramic materials)**
- 08 02 01 waste coating powders
- 08 02 02 aqueous sludges containing ceramic materials
- 08 02 03 aqueous suspensions containing ceramic materials
- 08 03 wastes from MFSU of printing inks**
- 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
- 08 04 wastes from MFSU of adhesives and sealants (including waterproofing products)**
- 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
  
- 9 WASTES FROM THE PHOTOGRAPHIC INDUSTRY**
- 09 01 wastes from the photographic industry**
- 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
  
- 10 WASTES FROM THERMAL PROCESSES**
- 10 01 wastes from power stations and other combustion plants (except 19)**
- 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  
**10 02 wastes from the iron and steel industry**  
 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  
**10 03 wastes from aluminium thermal metallurgy**  
 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  
**10 04 wastes from lead thermal metallurgy**  
 10 04 10 wastes from cooling-water treatment other than those mentioned in 10 04 09  
**10 05 wastes from zinc thermal metallurgy**  
 10 05 01 slags from primary and secondary production  
 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  
**10 06 wastes from copper thermal metallurgy**  
 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  
**10 07 wastes from silver, gold and platinum thermal metallurgy**  
 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  
**10 08 wastes from other non-ferrous thermal metallurgy**  
 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  
**10 09 wastes from casting of ferrous pieces**  
 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 10 wastes from casting of non-ferrous pieces**  
 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
- 10 11 wastes from manufacture of glass and glass products**
- 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
- 10 12 wastes from manufacture of ceramic goods, bricks, tiles and construction products**
- 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
- 10 13 wastes from manufacture of cement, lime and plaster and articles and products made from them**
- 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

**11 WASTES FROM CHEMICAL SURFACE TREATMENT AND COATING OF METALS AND OTHER MATERIALS; NON-FERROUS HYDRO-METALLURGY**

- 11 01 wastes from chemical surface treatment and coating of metals and other materials (for example galvanic processes, zinc coating processes, pickling processes, etching, phosphating, alkaline degreasing, anodising)**
- 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
- 11 02 wastes from non-ferrous hydrometallurgical processes**
- 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
- 11 03 sludges and solids from tempering processes**
- 11 05 wastes from hot galvanising processes**
- 11 05 01 hard zinc
- 11 05 02 zinc ash

**12 WASTES FROM SHAPING AND PHYSICAL AND MECHANICAL SURFACE TREATMENT OF METALS AND PLASTICS**

- 12 01 wastes from shaping and physical and mechanical surface treatment of metals and plastics**
- 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

**15 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED**

- 15 01 packaging (including separately collected municipal packaging waste)**
- 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
- 15 02 absorbents, filter materials, wiping cloths and protective clothing**
- 15 02 03 absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02

**16 WASTES NOT OTHERWISE SPECIFIED IN THE LIST**

**16 01 end-of-life vehicles from different means of transport (including offroad machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)**

- 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
- 16 02 wastes from electrical and electronic equipment**
- 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
- 16 03 off-specification batches and unused products**
- 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
- 16 05 gases in pressure containers and discarded chemicals**
- 16 05 05 gases in pressure containers other than those mentioned in 16 05 04
- 16 05 09 discarded chemicals other than those mentioned in 16 05 06, 16 05 07 or 16 05 08
- 16 06 batteries and accumulators**
- 16 06 04 alkaline batteries (except 16 06 03)
- 16 06 05 other batteries and accumulators
- 16 08 spent catalysts**
- 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
- 16 08 04 spent fluid catalytic cracking catalysts (except 16 08 07)
- 16 11 waste linings and refractories**
- 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

**17 CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**

- 17 01 concrete, bricks, tiles and ceramics**
- 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
- 17 02 wood, glass and plastic**
- 17 02 01 wood
- 17 02 02 glass
- 17 02 03 plastic
- 17 03 bituminous mixtures, coal tar and tarred products**
- 17 03 02 bituminous mixtures other than those mentioned in 17 03 01
- 17 04 metals (including their alloys)**
- 17 04 01 copper, bronze, brass
- 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
- 17 05 soil (including excavated soil from contaminated sites), stones and dredging spoil**

- 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
- 17 06 insulation materials and asbestos-containing construction materials**
- 17 06 04 insulation materials other than those mentioned in 17 06 01 and 17 06 03
- 17 08 gypsum-based construction material**
- 17 08 02 gypsum-based construction materials other than those mentioned in 17 08 01
- 17 09 other construction and demolition wastes**
- 17 09 04 mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03
  
- 18 WASTES FROM HUMAN OR ANIMAL HEALTH CARE AND/OR RELATED RESEARCH (except kitchen and restaurant wastes not arising from immediate health care)**
- 18 01 wastes from natal care, diagnosis, treatment or prevention of disease in humans**
- 18 01 01 sharps (except 18 01 03)
- 18 01 02 body parts and organs including blood bags and blood preserves (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
- 18 02 wastes from research, diagnosis, treatment or prevention of disease involving animals**
- 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
  
- 19 WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE**
- 19 01 wastes from incineration or pyrolysis of waste**
- 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
- 19 02 wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)**
- 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
- 19 03 stabilised/solidified wastes (4)**
- 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
- 19 04 vitrified waste and wastes from vitrification**
- 19 04 01 vitrified waste
- 19 05 wastes from aerobic treatment of solid wastes**
- 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
- 19 06 wastes from anaerobic treatment of waste**
- 19 06 03 liquor from anaerobic treatment of municipal waste
- 19 06 04 digestate from anaerobic treatment of municipal waste
- 19 06 05 liquor from anaerobic treatment of animal and vegetable waste
- 19 06 06 digestate from anaerobic treatment of animal and vegetable waste
- 19 08 wastes from waste water treatment plants not otherwise specified**
- 19 08 01 screenings
- 19 08 02 waste from desanding
- 19 08 05 sludges from treatment of urban waste water
- 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
- 19 09 wastes from the preparation of water intended for human consumption or water for industrial use**
- 19 09 01 solid waste from primary filtration and screenings
- 19 09 02 sludges from water clarification
- 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  
**19 10 wastes from shredding of metal-containing wastes**  
 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  
**19 11 wastes from oil regeneration**  
 19 11 06 sludges from on-site effluent treatment other than those mentioned in 19 11 05  
**19 12 wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**  
 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  
**19 13 wastes from soil and groundwater remediation**  
 19 13 02 solid wastes from soil remediation other than those mentioned in 19 13 01  
 19 13 06 sludges from groundwater remediation other than those mentioned in 19 13 05

**20 MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**

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  
**20 02 garden and park wastes (including cemetery waste)**  
 20 02 01 biodegradable waste  
 20 02 02 soil and stones  
 20 02 03 other non-biodegradable wastes  
**20 03 other municipal wastes**  
 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 / Description	Limit	Monitoring frequency	Monitoring method
Cells 1 and 2 sump.	3.0 metres above base of sump	Monthly	Unless otherwise agreed in writing with the Agency, monitoring methods used shall be in accordance with Environment Agency document 'Guidance on monitoring of landfill leachate, groundwater and surface water' (LFTGN02)
All leachate monitoring wells installed within cells 1 & 2.	2.0 metres above the base of the cell.	Monthly	
Cell 4 sump.	2.8 metres above base of sump	Monthly	
All leachate monitoring wells installed within cells 3 & 4.	1.8 metres above the base of the cell.	Monthly	
Cell 5 sump.	2.0 metres above base of the cell.	Monthly	
All leachate monitoring wells installed within cell 5.	2.0 metres above the base of the cell.	Monthly	
Sumps 3-1, 3-2, 3-3, 3-4 as identified on Drawing number 7 dated May 2006.	1.5 metres above base of cell.	Monthly	
All leachate monitoring wells installed within Cell 3-1, 3-2, 3-3, 3-4.	1.5 metres above base of cell.	Monthly	

**Table S4.2 Point Source Emissions to Air – emission limits and monitoring requirements**

Emission point Ref. & Location	Parameter	Source	Limit	Reference Period	Monitoring Frequency	Monitoring Standard or Method
Flare as identified on plan ESID2 dated May 2004.	Operational temperature	Landfill Gas Flare	>1000°C	Hourly mean	Continuous while flare operational	No method specified.
	Oxides of Nitrogen	Landfill Gas Flare	150 mg/m <sup>3</sup>	Hourly mean	Annually	ISO 10849
	Carbon Monoxide	Landfill Gas Flare	100 mg/m <sup>3</sup>	Hourly mean		ISO 12039
	Total VOCs	Landfill Gas Flare	10 mg/m <sup>3</sup>	Hourly mean		BS EN 12619 or BS EN 13526
	NMVOCs	Landfill Gas Flare	5 mg/m <sup>3</sup>	Hourly mean		BS EN 13649
	Sulphur Dioxide	Landfill Gas Flare	To be agreed in writing with the Agency	To be agreed in writing with the Agency		To be agreed in writing with the Agency

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 Ref. & Location	Parameter	Source	Limit	Reference Period	Monitoring Frequency	Monitoring Standard or Method
SW205	Flow Rate	Surface Water	5 Litres per second	Spot Sample	Monthly	Unless otherwise agreed in writing with the Agency, monitoring methods used shall be in accordance with Agency document 'Guidance on monitoring of landfill leachate, groundwater and surface water' (LFTGN02)
	Discharge volume	Drainage System	432 cubic metres per day		Monthly	
	Ammoniacal Nitrogen		1.0 mg/l		Monthly	
	Chloride		150 mg/l		Monthly	
	Suspended Solids		70 mg/l		Monthly	
	pH		6.0 to 9.0 pH units		Monthly	
SW206	Flow Rate	Surface Water	9.6 Litres per second	Spot Sample	Monthly	
	Discharge volume	Drainage System	829 cubic metres per day		Monthly	
	Suspended Solids		50 mg/l		Monthly	
	Ammoniacal Nitrogen		1.0 mg/l		Monthly	
	Chloride		150 mg/l		Monthly	
	pH		6.0 to 9.0 pH units		Monthly	
SW205 & SW206	Mecoprop	Surface Water	0.000055 mg/l	Spot Sample	Quarterly	
	Diethylphthalate	Drainage System	0.003 mg/l		Quarterly	
	Dichloromethane		0.002 mg/l		Quarterly	
	4-Methylphenol		0.001 mg/l		Quarterly	
	Cadmium		0.0001 mg/l		Quarterly	

**Table S4.4 Point Source Emissions to Sewer, Effluent Treatment Plant or by Tankering or other transfer Off-Site- emission limits and monitoring requirements**

Emission point Ref. & Location	Parameter	Source	Limit	Reference Period	Monitoring Frequency	Monitoring Standard or Method
Leachate pond as identified on plan ESID2 dated May 2004.	Volume transferred off-site	Leachate from the permitted landfill	No limit	Spot Sample	Volume of each load shall be recorded	None Specified
Leachate Holding Lagoon as identified on plan HRA1 dated July 2006.	Volume transferred off-site	Leachate from the permitted landfill	No limit	Spot Sample	Volume of each load shall be recorded	None Specified



Table S4.5 Trigger levels for emissions into groundwater and monitoring requirements

Monitoring point reference	Parameter	Limit	Reference Period	Monitoring frequency	Monitoring standard or method
NACW212, NACW205, NACW227, NACW228, NACW203, 3/4, BH5/02, BH208, UD1, UD2, UD3 and UD4	Ammoniacal Nitrogen	5.5 mg/l	Spot Sample	Monthly	Unless otherwise agreed in writing with the Agency, monitoring methods used shall be in accordance with Environment Agency document 'Guidance on monitoring of landfill leachate, groundwater and surface water' (LFTGN02)
	Chloride	150 mg/l		Monthly	
	Mecoprop	0.000055 mg/l		Quarterly	
	Diethylphthalate	0.003 mg/l		Quarterly	
	Dichloromethane	0.002 mg/l		Quarterly	
	4-Methylphenol	0.001 mg/l		Quarterly	
	Cadmium	0.0001 mg/l		Quarterly	
NACW205, NACW227, NACW228, NACW203, 3/4, BH5/02, BH208, UD1, UD2, UD3 and UD4	Nickel	0.02 mg/l		Quarterly	
NACW212	Nickel	0.037 mg/l		Quarterly	

Table S4.6 Landfill gas in external monitoring boreholes – limits and monitoring requirements

Monitoring point Ref. /description	Parameter	Limit (including units)	Monitoring frequency	Monitoring standard or method
NACW201, NACW202, NACW203, NACW204, NACW205, NACW212, NACW213, NACW006, NACW215, NACW216, NACW219, NACW220, NACW227, NACW228, NACW229, NACW230, 3/1, 3/2, 3/3, 3/4, 3/5, 3/6, 3/8, 3/9, 3/10 and 3/11 unless otherwise agreed in writing with the Environment Agency.	Methane	1 % v/v above background concentrations unless otherwise agreed in writing with the Agency.	Monthly unless otherwise agreed in writing with the Environment Agency	Unless otherwise agreed in writing with the Agency, monitoring methods used shall be in accordance with Environment Agency document "Guidance on the management of landfill gas. LFTGN03".
	Carbon Dioxide	3.5% v/v		
	Oxygen	No Limit		
	Atmospheric pressure	No Limit		
	Differential Pressure	No Limit		
	Temperature	No Limit		
	Meteorological data	No Limit		

**Table S4.7 Landfill gas from capped surfaces - limits and monitoring requirements**

Monitoring point Ref. /description	Parameter	Limit (Including unit)	Monitoring frequency	Monitoring Standard or method
General surface type and condition	None	None	Annually	Walk over survey
Permanently capped zone	Average Methane flux	0.001 mg/m <sup>2</sup> /second	Annually unless otherwise agreed in writing with the Agency	As per LFTGN 07 or as otherwise agreed in writing by the Agency*.
Temporarily capped zone	Average Methane flux	0.1 mg/m <sup>2</sup> /second	Annually unless otherwise agreed in writing with the Agency	As per LFTGN 07 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 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 S4.8 Landfill Gas – other monitoring requirements**

<b>Emission point reference or source or description of point of measurement</b>	<b>Parameter</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>	<b>Other specifications</b>
All in-waste monitoring boreholes installed within Cells 1 to 5 and Cells 3-1, 3-2, 3-3 and 3-4.	Methane	Monthly unless otherwise agreed in writing with the Agency	v/v $\pm$ 0.1%	On an annual basis the Operator shall submit an up to date scale plan detailing the locations of all in waste monitoring boreholes installed at the installation. Each well shall be referenced with a unique identifier
	Carbon Dioxide		v/v $\pm$ 0.1%	
	Oxygen		v/v $\pm$ 0.1%	
	Atmospheric pressure		$\pm$ 1mb	
	Differential pressure		$\pm$ 1mb	
	Temperature		$\pm$ 1°C	
	Meteorological Data		As per LFTGN03	
	Carbon Monoxide	Quarterly unless otherwise agreed in writing with the Agency	v/v $\pm$ 0.1%	
All landfill gas collection wells installed within Cells 1 to 5 and Cells 3-1, 3-2, 3-3 and 3-4.	Methane	Monthly unless otherwise agreed in writing with the Agency	v/v $\pm$ 0.1%	On an annual basis the Operator shall submit an up to date scale plan detailing the locations of all gas collection wells installed at the installation. Each well shall be referenced with a unique identifier.
	Carbon Dioxide		v/v $\pm$ 0.1%	
	Oxygen		v/v $\pm$ 0.1%	
	Atmospheric pressure		$\pm$ 1mb	
	Differential pressure		$\pm$ 1mb	
	Temperature		$\pm$ 1°C	
	Gas Flow Rate		Cubic metres of landfill gas per hour $\pm$ 1%	
A sample of landfill gas taken at a location agreed in writing with the Environment Agency.	Trace Gas Analysis including Hydrogen Sulphide	Annually unless otherwise agreed in writing with the Agency	To be agreed in writing with the Environment Agency at least 14 days prior to taking the sample	The selection of sample point and monitoring method shall be justified in writing with reference to Agency guidance entitled 'Guidance for monitoring trace components in landfill gas' (LFTGN04).
Landfill gas input to flare(s)	Methane	Continuous unless otherwise agreed in writing with the Agency	v/v $\pm$ 0.1%	Where the oxygen level exceeds 5% or where the addition of the Carbon Dioxide and Methane percentages is less than 80%, an assessment of air ingress in to the system shall be undertaken and the Environment Agency notified in writing.
	Carbon Dioxide		v/v $\pm$ 0.1%	
	Oxygen		v/v $\pm$ 0.1%	
	Gas Flow Rate		Cubic metres of landfill gas per hour $\pm$ 1%	

Table S4.9 Leachate – other monitoring requirements

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
a) All leachate monitoring wells	Leachate Level	Monthly	Unless otherwise agreed in writing with the Agency, monitoring methods used shall be in accordance with Environment Agency document 'Guidance on monitoring of landfill leachate, groundwater and surface water' (LFTGN02)	<ol style="list-style-type: none"> <li>The Operator shall supply in writing details of List I substances to be analysed one month prior to undertaking annual monitoring. This shall include all parameters used in the Hydrogeological Risk Assessment.</li> <li>In the event that the trigger levels detailed in Table HRA9 of the hydrogeological risk assessment (SLR Ref: 407-0610-00011/HRA) dated May 2006 are exceeded the Agency shall be notified in writing within seven days of the result being received by the Operator.</li> </ol>
	Monitoring point base	Annually		
b) Cell 1 & 2 Sump	Leachate Level	Monthly		
c) Cell 4 Sump	Electrical Conductivity	Monthly		
d) Cell 5 Sump	Chloride	Monthly		
e) Leachate pond as identified on plan ESID2 dated May 2004.	Ammoniacal Nitrogen	Monthly		
	Total Alkalinity	Quarterly		
	Magnesium	Quarterly		
	Potassium	Quarterly		
f) Leachate holding lagoon as identified on plan HRA1 dated July 2006.	Total Sulphate	Quarterly		
	Calcium	Quarterly		
	Sodium	Quarterly		
	Biochemical Oxygen Demand	Quarterly		
g) Sumps 3-1, 3-2, 3-3, 3-4 as identified on Drawing number 7 dated May 2006.	Chemical Oxygen Demand	Quarterly		
	Total Organic Carbon	Quarterly		
	Total Oxidised Nitrogen	Quarterly		
	Manganese	Quarterly		
	Iron	Quarterly		
	Cadmium	Quarterly		
	Chromium	Quarterly		
	Copper	Quarterly		
	Lead	Quarterly		
	Zinc	Quarterly		
	Nickel	Quarterly		
	Mecoprop	Quarterly		
	Diethylphthalate	Quarterly		
	Dichloromethane	Quarterly		
	4-Methylphenol	Quarterly		
	Monitoring point base	Annually		
	List 1 screen	Annually		

Table S4.10 Surface water – other monitoring requirements

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
SW201, SW202, SW203 and SW204	Ammoniacal Nitrogen	Monthly	Unless otherwise agreed in writing with the Environment Agency, monitoring methods used shall be in accordance with Environment Agency document 'Guidance on monitoring of landfill leachate, groundwater and surface water' (LFTGN02)	The Operator shall supply in writing details of List I substances to be analysed one month prior to undertaking annual monitoring. This shall include all parameters used in the Hydrogeological Risk Assessment.
	Chloride	Monthly		
	Suspended Solids	Monthly		
	pH	Monthly		
	Mecoprop	Quarterly		
	Diethylphthalate	Quarterly		
	Dichloromethane	Quarterly		
	4-Methylphenol	Quarterly		
SW201, SW202, SW203, SW204 SW205 and SW206	Cadmium	Quarterly		
	Water Level	Monthly	Unless otherwise agreed in writing with the Environment Agency, monitoring methods used shall be in accordance with Environment Agency document 'Guidance on monitoring of landfill leachate, groundwater and surface water' (LFTGN02)	The Operator shall supply in writing details of List I substances to be analysed one month prior to undertaking annual monitoring. This shall include all parameters used in the Hydrogeological Risk Assessment.
	Temperature	Monthly		
	Electrical Conductivity	Monthly		
	Total Alkalinity	Quarterly		
	Magnesium	Quarterly		
	Potassium	Quarterly		
	Total Sulphate	Quarterly		
	Calcium	Quarterly		
	Sodium	Quarterly		
	Total Oxidised Nitrogen	Quarterly		
	Total Organic Carbon	Quarterly		
	Manganese	Quarterly		
	Iron	Quarterly		
	Chromium	Quarterly		
	Copper	Quarterly		
	Lead	Quarterly		
	Zinc	Quarterly		
	Nickel	Quarterly		
	Ionic Balance	Quarterly		
	List I Screen	Annually		

Table S4.11 Groundwater – other monitoring requirements

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
NACW227, NACW228	Water Level	Monthly	Unless otherwise agreed in writing with the Agency, monitoring methods used shall be in accordance with Environment Agency document 'Guidance on monitoring of landfill leachate, groundwater and surface water' (LFTGN02)	The Operator shall supply in writing details of List I substances to be analysed one month prior to undertaking annual monitoring. This shall include all parameters used in the Hydrogeological Risk Assessment.
NACW212, NACW203, NACW205, 3/4, BH5/02, BH208, UD1, UD2, UD3 and UD4	Electrical Conductivity	Monthly		
Unless otherwise agreed in writing with the Environment Agency: NACW229, 3/2, 3/3, 3/4, 3/5, 3/6, 3/8, 3/9 and NACW219.	Water Level	Monthly		
	Electrical Conductivity	Quarterly		
	Ammoniacal Nitrogen	Quarterly		
	Chloride	Quarterly		
	Nickel	Quarterly		
	Mecoprop	Quarterly		
	Diethylphthalate	Quarterly		
	Dichloromethane	Quarterly		
	4-Methylphenol	Quarterly		
	Cadmium	Quarterly		
Unless otherwise agreed in writing with the Environment Agency: NACW227, NACW228 NACW212, NACW203, NACW205, 3/4, BH5/02, BH208, UD1, UD2, UD3, UD4 and NACW229, 3/2, 3/3, 3/4, 3/5, 3/6, 3/8, 3/9 and NACW219.	Total Alkalinity	Quarterly		
	Magnesium	Quarterly		
	Potassium	Quarterly		
	Total Sulphate	Quarterly		
	Calcium	Quarterly		
	Sodium	Quarterly		
	Nitrates	Quarterly		
	Nitrites	Quarterly		
	Total Oxidised Nitrogen	Quarterly		
	Manganese	Quarterly		
	Iron	Quarterly		
	Chromium	Quarterly		
	Copper	Quarterly		
	Lead	Quarterly		
	Zinc	Quarterly		
	Nickel	Quarterly		
All Groundwater Boreholes unless otherwise agreed in writing with the Environment Agency	Monitoring point base	Quarterly		
	List I Screen	Annually		

## 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 As required by condition 3.6.1	All leachate monitoring points	Every 3 months	2 August 2005
Emissions to air Parameters as required by condition 3.6.1	All monitoring points as identified in table S4.2.	Every 12 months	2 August 2005
Emissions to water Parameters as required by condition 3.6.1	All monitoring points as identified in table S4.3	Every 3 months	2 August 2005
Groundwater Parameters as required by condition 3.6.1	All monitoring points as identified in table S4.5 and 4.11	Every 3 Months	2 August 2005
Landfill gas lateral migration Parameters as required by condition 3.6.1	All monitoring points as identified in table S4.6	Every 3 months	2 August 2005
Other Landfill gas monitoring Parameters as required by condition 3.6.1	All monitoring points as identified in table S4.7	Every 12 months	28 February 2008
Other Landfill gas monitoring Parameters as required by condition 3.6.1	All monitoring points as identified in table S4.8	Every 3 months	2 August 2005
Other leachate monitoring Parameters as required by condition 3.6.1	All monitoring points as identified in table S4.9	Every 3 months	2 August 2005
Monitoring Point Base		Every 12 months	28 February 2008
List 1 Screen		Every 12 months	
Other surface water monitoring Parameters as required by condition 3.6.1	All monitoring points as identified in table S4.10	Every 3 months	2 August 2005
List 1 Screen		Every 12 months	

**Table S5.2: Annual Production/Treatment**

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

**Table S5.3 Performance Parameters**

Parameter	Frequency of assessment	Annual total	Unit
Energy used	Annually		MW of electricity

Table S5.4 Reporting Forms		
Media/parameter	Form Number	Date of Form
Leachate	Form Leachate1 or other reporting format to be agreed in writing with the Agency	27/02/08
Controlled Water	Form Water1 or other reporting format to be agreed in writing with the Agency	27/02/08
Groundwater	Form Groundwater1 or other reporting format to be agreed in writing with the Agency	27/02/08
Landfill gas	Form LFG1 or other reporting format to be agreed in writing with the Agency	27/02/08
Waste summary	Waste Return Form WMS1 & WMS3	To be agreed with the Agency.
Landfill topographical surveys and interpretation	Reporting format to be agreed in writing with the Agency	To be agreed with the Agency.



## 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	

<b>(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>	
<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>(b) Notification requirements for the breach of a limit</b>	
<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

(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 Cwm Environmental Ltd

## Schedule 7 - Interpretation

**"Accident"**

means an accident that may result in pollution.

**"Annually"**

means once every calendar year ending 31 December.

**"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.
- 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"**

means Construction Quality Assurance.

**"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-compliance's 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 installation.

*"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 and monitoring programme".

*"Liquids"*

means any liquid other than leachate within the engineered landfill containment system.

*"LFTGN01"*

means Environment Agency Guidance Hydrogeological risk assessment for landfills and the derivation of control and trigger levels, March 2003

*"LFTGN02"*

means Environment Agency Guidance for monitoring of landfill leachate, groundwater and surface water, February 2003

*"LFTGN03"*

means Environment Agency Guidance on the management of landfill gas, September 2004

*"LFTGN04"*

means Environment Agency Guidance for monitoring trace components in landfill gas, September 2004

*"LFTGN05"*

means Environment Agency Guidance for monitoring enclosed landfill gas flares, September 2004.

*"LFTGN08"*

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 alter 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, 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**

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