



ASiantaeth yr  
AMGYLCHEDD CYMRU  
ENVIRONMENT  
AGENCY WALES

ENVIRONMENTAL PROTECTION ACT 1990.  
SECTION 37  
WASTE MANAGEMENT LICENCE  
NOTICE OF MODIFICATION

<b>LICENCE REF No:- BRE/50/2.94</b> (EAWML 30035)	<b>FACILITY TYPE:- Landfill Facility</b>
<b>LICENCE HOLDER:-</b> Mr J G Powell 2 Tai North Pennorth Brecon Powys LD3 7EJ	<b>LICENSED FACILITY:-</b> Cwrt Y Plyffin Landfill Facility Llanwern Brecon  National Grid Reference :- SCANNED

WHEREAS on the 25 April 1990 Brecknock Borough Council issued a licence to dispose of waste (now to be treated as a waste management licensee) in pursuance of its powers under Part I of the Control of Pollution Act 1974 for the above named facility

AND WHEREAS on the 28 July 1995 Brecknock Borough Council modified the conditions of the said licence deleting all existing conditions

AND WHEREAS on the 1 April 1996 the powers and duties of all waste regulation authorities in England and Wales transferred to the Environment Agency ("the Agency") by virtue of section 2 of the Environment Act 1995

AND WHEREAS on the 23 March 1999 the Agency modified the conditions of the said licence pursuant to Section 37 of the Environmental Protection Act 1990

NOTICE IS HEREBY GIVEN that the Agency modifies the conditions of the said licence in accordance with Section 37(1)(a) of the Environmental Protection Act 1990 and as set out in the Schedule attached to this notice.

Signed J Tomala  
**JOHN TOMALA**  
Team Leader - Environment Management

Dated 15 May 2003.

This modification shall take effect on 20/05/2003 at 00:01 hours

YOUR ATTENTION IS DRAWN TO THE RIGHTS OF APPEAL AT THE END OF THIS NOTICE.

Environment Agency Wales  
RIVERS HOUSE  
St Mellons Business Park  
St Mellons  
CARDIFF  
CF3 0EY  
DX Address 121375  
Tel 029 20 770088  
Fax 029 20 362487

Asiantaeth yr Amgylchedd  
PLAS YR AFON  
Parc Busnes Llanelwyrwg  
Llanelwyrwg  
Caerdydd  
CF3 0EY  
Cyfeiriad DX 121375  
Ffôn 029 20 770088  
Ffacs 029 20 362487

21/5/03  
SCANNED



## **EXPLANATORY NOTES - including rights of appeal.**

### **RIGHTS OF APPEAL**

Section 43(1) of the Environmental Protection Act 1990 provides that:

Where, except in pursuance of a direction given by the National Assembly for Wales, the conditions of a licence are modified, the licence holder may appeal from the decision to the National Assembly for Wales.

Therefore, if you feel aggrieved by the decision detailed on the attached notice, you may obtain the appropriate form on which to give written notice of an appeal from :-

For Wales, the address is – The Planning Inspectorate  
Crown Buildings  
Cathays Park  
Cardiff  
CF10 3NQ

Tel: 02920 823859  
Fax: 02920 825150

This notice of appeal should be accompanied by the following information:

A statement of the grounds of appeal;

A copy of any application to modify the licence

A copy of the licence;

A copy of any correspondence relevant to the appeal;

A copy of any other document relevant to the appeal including, in particular, any relevant consent, determination, notice, planning permission, established use certificate or certificate of lawful use or development and

A statement indicating whether you wish the appeal to be in the form of a hearing or on the basis of written representations.

You are also required to serve a copy of your notice of appeal, together with copies of any the above documents that have accompanied your notice of appeal, on the Environment Agency (at the address below). You should appeal within 6 months of the date that this notice takes effect but the National Assembly for Wales may allow notice of appeal to be given after the expiry of this time period.

**Environment Agency Wales,  
Rivers House,  
St Mellons Business Park,  
St Mellons,  
Cardiff.  
CF3 0EY.**

## SCHEDULE – CONDITIONS RELATING TO THIS MODIFICATION

Modification of conditions under section 37(1)(a) as follows:

### Delete Existing

Schedule A  
Schedule B  
Schedule F  
Schedule C Condition C2  
Schedule E Condition E18

### Add New

Schedule A  
Schedule B Condition B1  
Schedule C Condition C2  
Schedule C Condition C3  
Schedule E Condition E18  
Schedule E Condition E32  
Schedule F

## SCHEDULE “A” - DEFINITIONS

In these conditions and their interpretation, unless the context otherwise requires, the following terms have the specified meanings:

### *“accepted”*

for waste being delivered to the site, shall mean accepted as waste input to the site for storage and/or processing and/or disposal under the specified waste management operations;

### *“authorised officer of the Agency”*

means any person(s) authorised in writing by the Agency pursuant to section 108(1) of the 1995 Act to exercise any of the powers specified in subsection (4) of that section;

### *“consequences”*

for **risk assessments** carried out within these conditions, means the adverse effects of harm as a result of realising a **hazard** which causes the quality of human health (other than health and safety of site staff or visitors to the site covered under the Health and Safety at Work Act 1974) or the environment to be impaired in the short or longer term.

### *“container”*

means a container which does not permit either the ingress or egress of liquids, or the escape of dusts or wastes contained within it;

### *“engineered”*

for works specified in these conditions, means carried out and completed using the relevant engineering process specified in these conditions;

### *“engineering”*

for engineering works specified in these conditions, means the relevant process of design, construction or installation, quality assurance or validation or commissioning specified in these conditions;

*"environmental targets or receptors"*

for **risk assessments** carried out within these conditions, shall mean identified human and environmental populations or components, as specified in these conditions or otherwise agreed by the Agency within these conditions.

*European Waste Catalogue" or "EWC"*

means commission Decision 2000/532/EC (as amended) or its subsequent replacement;

*groundwater"*

means any water contained in underground strata;

*"hazard"*

means a property that in particular circumstances could lead to harm;

*"immediately"*

for carrying out of actions under the conditions, shall mean without delay and within a reasonable time, taking into account any more immediate direct action necessary to prevent or minimise risk to human health and the environment. For carrying out notifications to the Agency, shall also mean by the fastest effective means available (for example, telephone) and confirmed in writing within 1 working day (or such other time as may be agreed by the Agency within the conditions);

*"inert waste"*

means wastes which will not undergo any significant physical, chemical or biological transformations. Inert waste will not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm to human health. The total leachability and pollutant content of the waste and the ecotoxicity of the leachate must be insignificant and in particular not endanger the quality of surface water and/or groundwater.

*"probability"*

means the quantified expression of chance, denoted either as:  
the ratio or percentage of the occurrence of a particular event as one among a number of possible events; or as the frequency of occurrence of a particular event in a given period of time;

*"release pathways"*

for **risk assessments** carried out within these conditions, shall mean the routes by which defined **hazards** may potentially realise their **consequences**, defined in terms of releases or emissions from the site that go beyond the site containment or boundary via one or more of the following routes, either directly or indirectly: **Land; Groundwater, Surface water; Atmosphere;**

*"relevant offences"*

are offences within the meaning of regulation 3 of the Waste Management Licensing Regulations 1994 or any statutory provisions or regulations amending or replacing them;

*"risk"*

means a combination of the **probability** and **consequences** of occurrence of a defined **hazard**;

*"risk assessment"*

means the systematic identification, analysis, estimation and evaluation within a defined **scope** of the defined **risks** of a particular activity, operation, process or design, carried out and reported by suitably qualified or competent persons, using recognised quantified or semi-quantified methods and techniques.

Unless otherwise agreed by the Agency within these conditions, a risk assessment shall include and record the following:



definition of the hazards associated with an activity, operation, process or design;  
assessment of the probability of those hazards occurring;  
determination of the potential consequences of those hazards for defined environmental targets or receptors, taking into account defined release pathways and defined protective measures;  
evaluation of the potential magnitude of those consequences and the probability of their occurrence;

*"scope of risk assessment"*

means the boundaries of the **risk assessment** and the **risks** to be assessed within those boundaries, as defined in the conditions or otherwise agreed by the Agency within the conditions;

*"surface water"*

means any lake, pond, river or watercourse whether natural or artificial;

*"the Agency"*

means the Environment Agency;

*"the Licence Holder"*

means the Licence Holder specified in this licence or other person to whom the licence has been transferred in accordance with section 40 of the Environmental Protection Act 1990;

*"the operator"*

means a person who is in occupation of the site and has responsibility for carrying out day to day activities at the site;

*"the site"*

means the land, structures, plant and equipment to which this licence relates;

*"the Waste Regulation Authority"*

means the Environment Agency

*"time periods, e.g. annually, quarterly, monthly, per year, etc. "*

Where periods are referred to in conditions, they shall be calculated in the following way: annually or per year: 1 April to 31 March;

quarterly: 1 April to 30 June, 1 July to 30 September, 1 October to 31 December, 1 January to 31 March;

monthly: calendar month;

weekly: Monday to Sunday.

Where the issue of the licence does not coincide with the start of any of these periods, then any relevant limits for the first period shall apply pro rata;

*"waste"*

means controlled waste as defined in section 75(4) of the 1990 Act and the Controlled Waste Regulations 1992 or any statutory provisions or regulations amending or replacing them;

*"waste types"*

*"hazardous waste"*

means any waste which is covered by Article 1(4) of Directive 91/689/EEC or subsequent legislation;

*"Non-hazardous waste"*

means any waste which is **not** covered by Article 1(4) of Directive 91/689/EEC or subsequent legislation;

## **SCHEDULE "B" - TYPES OF WASTE**

### **B1 Permitted wastes**

#### *Permitted categories and types of wastes*

B1.1 No wastes other than those which are both categorised below in Table B1.1 shall be accepted at the site.

**Table B1.1 Permitted quantities of waste**

Permitted Waste Categories (Classified using European Waste Catalogue)	Maximum Permitted Quantities
Inert wastes	No limit subject to maximum storage capacities detailed in B1.2 below.
10 11 03 Waste glass based fibrous materials	
15 01 07 Glass packaging	
17 01 01 Concrete	
17 01 02 Bricks	
17 01 03 Tiles and ceramics	
17 02 02 Glass	
17 05 04 Soil and stones excluding topsoil, peat	
20 01 02 Glass	
20 02 02 Soil and stones excluding topsoil, peat	
Degradable Household wastes	Subject to a maximum daily quantity of 2 tonnes per day.
Degradable Commercial wastes	
Degradable Industrial wastes (non-hazardous)	
<b>02 WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING</b>	
<b>02 01 wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing</b>	
02 01 04 waste plastics (except packaging)	
<b>03 WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD</b>	
<b>03 01 wastes from wood processing and the production of panels and furniture</b>	
03 01 01 waste bark and cork	
03 01 05 shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04	
<b>03 03 wastes from pulp, paper and cardboard production and processing</b>	
03 03 01 waste bark and wood	

**Table B1.1 Permitted quantities of waste**

- 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 05 composite packaging
    - 15 01 07 glass packaging
    - 15 01 09 textile packaging
- 17 CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**
  - 17 01 concrete, bricks, tiles and ceramics**
    - 17 01 07 mixtures of concrete, bricks, tiles and ceramics not containing dangerous substances
  - 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 02 aluminium
    - 17 04 03 lead
    - 17 04 04 zinc
    - 17 04 05 iron and steel
    - 17 04 06 tin
    - 17 04 07 mixed metals
    - 17 04 11 cables other than those mentioned in 17 04 10
  - 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 06 05 construction materials containing asbestos
  - 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

**Table B1.1 Permitted quantities of waste**

**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 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 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 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 04 spent activated carbon

19 09 05 saturated or spent ion exchange resins

**19 10 wastes from shredding of metal-containing  
wastes**

19 10 01 iron and steel waste

19 10 02 non-ferrous waste

**Table B1.1 Permitted quantities of waste**

**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

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

**20 01 separately collected fractions (except 15 01)**

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 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 99 other fractions not otherwise specified

**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 07 bulky waste

20 03 99 municipal wastes not otherwise specified

*Permitted quantities of wastes*

B1.2 The total quantity of waste accepted at the site per year shall not exceed 12,000 tonnes.

*Exclusion of wastes with other specified characteristics*

B1.3 Notwithstanding the specification of permitted waste types under condition B1.1 above, wastes shall not be accepted at the site which have any of the following characteristics:

**Table B1.2 Excluded wastes of specified form and type**

Waste Characteristic	Type
Form and Type:	i) Consisting solely or mainly of dusts, powders or loose fibres; ii) Wastes that are in a form which is either sludge or liquid.

## **SCHEDULE "C" - GENERAL CONDITIONS**

### **C2 Notifications and submissions to Agency**

Except where otherwise specified, all notifications and submissions to the Agency under the requirements of these licence conditions:

- a** shall be made in writing to the address specified by the Agency in writing at the time of issue of this modification, or as subsequently specified by written notification to the Licence Holder;
- b** shall quote the licence reference number and the name of the Licence Holder.

### **C3 Duration of activities - groundwater protection**

C3.1 Subject to the terms of this condition, the activities of disposal, or tipping for the purpose of disposal, of waste, that are authorised by this licence shall cease on 28 February 2004, unless by that date, the Licence Holder has submitted to the Agency a written investigation and risk assessment, carried out in accordance with condition C3.3 which shows that, at the specified date, the level of risk to groundwater the terms of Regulation 15 of the 1994 Regulations.

C3.2 In the event that the continuation of activities is authorised in accordance with this condition beyond they shall cease on every fourth anniversary thereafter, unless, by each of those dates, the Licence Holder has submitted to the Agency a written review of the investigation and risk assessment which shows that at the specified dates the level of risk to groundwater the terms of Regulation 15 of the 1994 Regulations.

#### *Investigation and risk assessment under Regulation 15*

C3.3 The Licence Holder shall undertake an investigation to assess the actual and potential impact of discharges from the site in respect of Regulation 15 of the 1994 Regulations. The investigation shall include the following:

- a** any relevant site investigation and monitoring data already available and interpretation of that data;
- b** an examination of the hydrogeological conditions of the area in and around the site;
- c** an examination of the possible purifying powers of the soil and subsoil;
- d** an assessment of the risk of pollution and alteration of the quality of groundwater including the risk of harm to other aquatic systems and ecosystems and the likelihood of impeding exploitation of groundwater resources from any discharge, whether direct or indirect, of list I or list II substances.

C3.4 The results of the investigation shall be submitted in a written report to the Agency. The report shall include the following, or in the case of subsequent reviews, reviews thereof:

- a** recommendations of the essential technical precautions which must be taken, paying particular attention to the nature and concentration of the substances present in the matter being disposed of or tipped, the characteristics of the receiving environment and the proximity of the water catchment areas, in particular those for drinking, thermal and mineral water;
- b** recommendations of the technical precautions necessary:

- i In the case where groundwater is considered to be permanently unsuitable for other uses, to ensure that no substance in list I can reach other aquatic ecosystems or harm other ecosystems, to ensure that the presence of any list I substance once discharged into the groundwater will not impede exploitation of ground resources and to prevent pollution of groundwater by list II substances; and
- ii In the case where groundwater is not considered to be permanently unsuitable for other uses, to prevent any discharges into groundwater of substances in list I and to prevent any pollution of groundwater by substances in list II.



## **SCHEDULE "E" - OPERATION OF SITE**

### **E18 Site diary**

- E18.1 A site diary shall be kept secure and shall be available for inspection at the site when required by an authorised officer of the Agency. This shall include a record of the following events:
- a** start and finish of construction works;
  - b** start and finish of daily waste management activities on site;
  - c** plant maintenance and breakdown;
  - d** emergencies and actions taken;
  - e** problems with wastes received and actions taken;
  - f** site inspections, including environmental monitoring by the operator, their findings and remedial responses;
  - g** despatch of records to the Agency;
  - h** severe weather conditions and performance of surface water management system;
  - i** technically competent management attendance on site; time onto site and time left site;
  - j** complaints about site operations and actions taken;
  - k** environmental problems and remedial actions.

- E18.2 Each record shall be completed within 24 hours of the relevant event.

### **E32 Security of records**

All records which are required to be made under the other conditions of this modification shall be maintained and kept secure from loss, damage or deterioration, and shall be kept in accordance with the requirements specified in Table E32 below.

**Table E32 Standards for keeping of site records**

<b>Site records</b>	<b>Specified standards</b>
Environmental monitoring records; Site diaries.	1. All records shall be stored either: a) on paper in a secure cabinet or cupboard; or b) on computer disc with a back up copy.

## **SCHEDULE "F" - SITE MONITORING**

### **F1 Engineering surveys**

- F1.1 Within 6 months of the date of this modification a network of stable, permanent survey control stations [minimum four] shall be established and maintained for the control of all survey work around the site. The stations shall be referenced to Ordnance Survey National Grid co-ordinates, the grid alignment to be within +/-1 metre and Levels referenced to Ordnance Datum. The accuracy of horizontal control shall not be less than 1:20 000. The level values of adjacent stations shall agree to less than or equal to 0.005 metres. A schedule of descriptions, co-ordinates and level values of all control stations, together with details of Bench Marks used shall be submitted in writing to the Agency.
- F1.2 A topographic survey shall be carried out at annual intervals (unless otherwise agreed in writing by the Agency). The first survey will be completed within 6 months of the date of this modification. The scale shall adequately show surveyed features and be at least 1:1250. The surveys shall be sufficient to produce plans that include all roads, structures, boundaries, monitoring points and all other relevant site features as required under the other conditions of this licence. The results of the survey shall be presented as a plan, including the immediate neighbouring landform or an indication of that landform. Plan positions of ground features to be shown to within 1 metre. Spot levels to 0.01m shall be shown at significant landform changes to a density to adequately indicate the true landform, no greater than 50metre interval in open areas of even gradient, closer when indicating embankments, stockpiles, etc. The results of the survey shall be submitted to the Environment Agency within 1 month of the survey being carried out.

### **F2 Landfill gas monitoring and reporting within the waste**

#### *Design and operational standard for existing landfill gas monitoring system*

- F2.1 The landfill gas monitoring system provided within each phase shall be inspected, maintained, documented and recorded in accordance with the standards specified in Table F2.1.

**Table F2.1 Standards for existing landfill gas monitoring system (within waste)**

<b>Internal landfill gas monitoring system requirements</b>	<b>Specified standards</b>
Inspection and maintenance of landfill gas monitoring systems	Monitoring installations shall be inspected for defects and damage during each routine monitoring exercise. Defects and damage shall be noted in the site diary, remedial measures shall be undertaken as soon as possible and in any case within 1 month.
Records	A record shall be kept of all remedial actions undertaken.

*Internal landfill gas monitoring and sampling programme relating to existing gas control system*

F2.2 Unless otherwise agreed in writing with the Agency monitoring, and sampling of landfill gas within the waste mass shall be carried out and recorded in accordance with the standards specified in Table F2.2 below.

**Table F2.2 Standards for existing landfill gas monitoring and sampling programme (within waste)**

Landfill gas monitoring determinands	Monitoring frequencies	Units and accuracy
Methane	Operational i) Quarterly Post-closure i) Six monthly for one year after the final levels of the waste have been attained, or the site is definitively closed; ii) Annually thereafter.	% v/v and to 0.3%
Carbon dioxide	As methane monitoring.	% v/v and to 0.3%
Oxygen	As methane monitoring.	% v/v and to 0.3%
Atmospheric pressure	As methane monitoring.	mbar to 1mbar, and whether rising or falling

*Design and operational standard for new landfill gas monitoring system*

F2.3 The installation of the landfill gas monitoring system provided within each phase shall be designed, constructed, inspected, maintained, documented and recorded in accordance with the standards specified in Table F2.3 below.

**Table F2.3 Standards for new landfill gas monitoring system (within waste)**

Internal landfill gas monitoring system requirements	Specified standards
Design of landfill gas monitoring systems	Unless otherwise agreed in writing with the Agency at least two monitoring points shall be installed per hectare of waste or part thereof, with a minimum of four. The monitoring points shall be evenly distributed within the site and installed to the full depth of the waste.
Construction and installation of landfill gas monitoring systems	Unless otherwise agreed in writing with the Agency the installations shall consist of boreholes containing a rigid HDPE casing of minimum internal diameter of 50mm. The space surrounding the borehole casing shall be packed with non-calcareous pea gravel and completed at the surface with a gas tight seal. The borehole casing shall consist of manufactured slotted pipe within the response zone of the borehole and plain pipe through the gas tight seal. The borehole casing shall be completed at the surface with a

**Table F2.3 Standards for new landfill gas monitoring system (within waste)**

<b>Internal landfill gas monitoring system requirements</b>	<b>Specified standards</b>
	removable gas tap, suitable for gas sampling, and these headworks shall be protected from damage with a lockable steel cover set in concrete.
Inspection and maintenance of landfill gas monitoring systems	Monitoring installations shall be inspected for defects and damage during each routine monitoring exercise. Defects and damage shall be noted in the site diary, remedial measures shall be undertaken as soon as possible and in any case within 1 month.
Records	A record shall be kept of all remedial actions undertaken.

*Construction quality assurance of new landfill gas monitoring systems*

- F2.4 For any newly constructed landfill gas monitoring systems:
- a** a Construction Quality Assurance Plan covering all elements of the engineered internal landfill gas monitoring system for that phase has been submitted in writing to the Agency and the Agency has given its written consent to it;
  - b** details of the identities, relevant experience and relevant qualifications of the personnel who will be providing Quality Assurance of the construction have been submitted in writing to the Agency and acknowledged in writing by the Agency.
- F2.5 The engineered internal landfill gas monitoring system shall be constructed and recorded in accordance with the Construction Quality Assurance Plan.
- F2.6 Changes to the Construction Quality Assurance Plan, quality assurance, and detailed method statements shall not be implemented unless they have been notified in writing to the Agency, and the Agency has given its written consent to those changes.
- F2.7 Within 1 calendar month following completion of the specified engineering works, a Validation Report on the construction of the engineered internal landfill gas monitoring system for the site shall be submitted in writing to the Agency.

F2.8 *Internal landfill gas monitoring and sampling programme relating to new gas control system*

Monitoring and sampling of landfill gas within the waste mass shall be carried out and recorded in accordance with the standards specified in Table F2.8 below.

**Table F2.8 Standards for new landfill gas monitoring and sampling programme (within waste)**

Landfill gas monitoring determinands	Monitoring frequencies	Units and accuracy
Methane	Operational <ul style="list-style-type: none"> <li>i) Within one month of the installation of the monitoring points</li> <li>ii) Quarterly thereafter</li> </ul> Post-closure <ul style="list-style-type: none"> <li>i) Six monthly for one year after the final levels of the waste have been attained, or the site is definitively closed;</li> <li>ii) Annually thereafter.</li> </ul>	% v/v and to 0.3%
Carbon dioxide	As methane monitoring	% v/v and to 0.3%
Oxygen	As methane monitoring	% v/v and to 0.3%
Atmospheric pressure	As methane monitoring	mbar to 1mbar, and whether rising or falling

*Internal landfill gas monitoring and sampling records*

F2.9 A record of the internal landfill gas monitoring and sampling results shall be made and submitted to the Agency in accordance with the standards specified in Table F2.9

**Table F2.9 Standards for landfill gas monitoring and sampling records (within waste)**

<b>Landfill gas monitoring and sampling records</b>	<b>Specified standards</b>
Quality assurance of monitoring and sampling	<ul style="list-style-type: none"><li>i) Monitoring shall only be carried out by suitably competent / qualified staff. Validation of results shall be carried out by a designated quality assurer adequately experienced in landfill gas engineering.</li><li>ii) Monitoring equipment shall be calibrated and serviced in accordance with the manufacturers recommendations.</li></ul>
Making of records	<p>Records shall include the following:</p> <ul style="list-style-type: none"><li>i) Determinands monitored/sampled;</li><li>ii) Specified details of measurements/samples to support analytical and quality assurance requirements; including, dates, times, locations, personnel undertaking monitoring;</li><li>iii) Results of measurements/sample analyses, with error limits;</li><li>iv) Interpretation and review of results</li><li>v) Validation of accuracy and validity of results, by designated quality assurer.</li></ul>
Submission of records	<p>A copy of the quality assured records of each monitoring and sampling result shall be submitted to the Agency within 1 month of its being carried out.</p>

## Leachate monitoring and reporting systems

### *Provision of leachate monitoring and reporting system*

- F3.1 From the date of issue of this modification, monitoring and sampling of leachate shall be undertaken and recorded for each of the leachate monitoring points in accordance with this condition and the standards specified in Table F3.2 below.

### *Leachate monitoring and sampling programme*

- F3.2 Monitoring and sampling of leachate shall be carried out and recorded in accordance with the standards specified in Table F3.2

Table F3.2 Standards for leachate monitoring and sampling programme		
Determinants	Monitoring frequencies	Units
Leachate level	Monthly	Metres AOD
pH	Monthly	pH units
Temperature	Monthly	°C
Electrical conductivity	Monthly	mev
Ammoniacal nitrogen	Quarterly for one year then annually if stable conditions are evident	µg / l
Chlorides		
BOD		
COD		
Sulphates		
Total alkalinity (as CaCO <sub>3</sub> at pH 4.5)		
Total oxidised nitrogen		
Total organic carbon		
Na		
K		
Ca		
Mg		
GCMS Scan (Volatiles )	Annually	µg / l
GCMS Scan (Semi-Volatiles )	Annually	µg / l
Fe	Annually	µg / l
Mn	Annually	µg / l
Cd	Annually	µg / l
Cr	Annually	µg / l
Cu	Annually	µg / l
Ni	Annually	µg / l
Pb	Annually	µg / l
Zn	Annually	µg / l

#### *Leachate monitoring and sampling records*

F3.3

A record of the leachate monitoring and sampling results shall be made and submitted to the Agency in accordance with the standards specified in Table F3.3 below.

**Table F3.3 Standards for leachate monitoring and sampling records**

<b>Leachate monitoring and sampling records</b>	<b>Specified standards</b>
a) Quality assurance of monitoring and sampling	<ul style="list-style-type: none"><li>i) Monitoring shall only be carried out by suitably competent / qualified staff.</li><li>ii) Monitoring equipment shall be calibrated and serviced in accordance with the manufacturer's recommendations.</li></ul>
b) Making of records	<p>Records shall include the following:</p> <ul style="list-style-type: none"><li>i) Determinands monitored/sampled;</li><li>ii) Specified details of measurements/samples to support analytical and Quality Assurance requirements; including dates, times, locations, personnel undertaking monitoring;</li><li>iii) Results of measurements/sample analyses, with error limits;</li><li>iv) Interpretation and review of results;</li><li>v) Validation of accuracy and validity of results, by designated quality assurer.</li></ul>
c) Submission of records	<p>A copy of the quality assured records of each monitoring and sampling result shall be submitted to the Agency within 1 month of its being carried out.</p>

F4

#### **Groundwater monitoring and reporting systems**

##### *Provision of groundwater monitoring system*

F4.1

From 1 August 2003, engineered groundwater monitoring systems shall be provided to enable monitoring of the groundwater outside the waste body in accordance with this condition.



F4.2

The engineered groundwater monitoring system provided shall be designed, constructed, inspected, maintained, documented and recorded in accordance with the standards specified in Table F4.2.

**Table F4.2 Standards for groundwater monitoring and sampling system**

<b>Groundwater monitoring systems</b>	<b>Specified standards</b>
a) Design of groundwater monitoring system	i) Each monitoring point shall enable an accurate level of groundwater to be measured and recorded. ii) Each monitoring point shall permit a representative sample of groundwater to be taken at any time. iii) Location, spacing and depth to be agreed in writing with the Agency.
b) Construction of the groundwater monitoring system	Each monitoring point shall be protected from damage or vandalism.
c) Inspection and maintenance of groundwater monitoring system	i) Monitoring installations shall be inspected for defects and damage on a weekly basis. ii) Defects and damage shall be noted in the site diary, remedial measures shall be undertaken as soon as possible and in any case within 1 month.
d) Records	A record shall be kept in the site diary of all remedial actions undertaken.

*Construction quality assurance of new groundwater monitoring systems*

F4.3

No further wastes shall be deposited in any phase for which new groundwater monitoring systems are to be constructed unless:

- a** a Construction Quality Assurance Plan covering all elements of the engineered groundwater monitoring system has been submitted in writing to the Agency and the Agency has given its written consent to it;
- b** details of the identities, relevant experience and relevant qualifications of the personnel who will be providing Quality Assurance of the construction have been submitted in writing to the Agency and acknowledged in writing by the Agency.

F4.4

The engineered external groundwater monitoring system for that phase shall be constructed and recorded in accordance with the Construction Quality Assurance Plan.

F4.5

Changes to the Construction Quality Assurance Plan, quality assurance, and detailed method statements shall not be implemented unless they have been notified in writing to the Agency, and the Agency has given its written consent to those changes.

F4.6

Within 1 calendar month following completion of the specified engineering works for each phase, the Validation Report on the construction of the engineered external groundwater monitoring system shall be submitted in writing to the Agency.

*Groundwater monitoring and sampling programme*

F4.7 Unless otherwise agreed in writing with the agency monitoring and sampling of groundwater shall be carried out and recorded in accordance with the standards specified in Table F4.7 below.

Table F4.7 Standards for groundwater monitoring and sampling programme	
Determinants	Monitoring frequencies
Water level pH Temperature Electrical conductivity Dissolved oxygen Ammoniacal nitrogen Chlorides	<p><i>Operational</i></p> <p>i) Monthly for the first three months following installation of the monitoring points, then quarterly</p> <p><i>Post-closure:</i></p> <p>i) Quarterly for one year after the final levels of waste have been attained, or after the site is definitively closed;</p> <p>ii) Six-monthly thereafter.</p>
<p>Sulphates</p> <p>Total alkalinity (as CaCO<sub>3</sub> at pH 4.5)</p> <p>Total oxidised nitrogen</p> <p>Total organic carbon</p> <p>Na</p> <p>K</p> <p>Ca</p> <p>Mg</p> <p>Fe</p> <p>Mn</p> <p>Cd</p> <p>Cr</p> <p>Cu</p> <p>Ni</p> <p>Pb</p> <p>Zn</p>	<p><i>Operational</i></p> <p>i) Quarterly</p> <p><i>Post-closure</i></p> <p>i) Quarterly for one year after the final levels of waste have been attained, or after the site is definitively closed;</p> <p>ii) Six-monthly thereafter.</p>

### *Monitoring and sampling records*

F4.8

A record of the groundwater monitoring and sampling results shall be made and submitted to the Agency in accordance with the standards specified in Table F4.8 below.

**Table F4.8 Standards for groundwater monitoring and sampling records**

<b>Groundwater monitoring and sampling records</b>	<b>Specified standards</b>
a) Quality assurance of monitoring and sampling	<ul style="list-style-type: none"><li>i) Monitoring shall only be carried out by suitably competent / qualified staff.</li><li>ii) Monitoring equipment shall be calibrated and serviced in accordance with the manufacturer's recommendations.</li></ul>
b) Making of records	<p>Records shall include the following:</p> <ul style="list-style-type: none"><li>i) Determinands monitored/sampled;</li><li>ii) Specified details of measurements/samples to support analytical and Quality Assurance requirements; including, dates, times, locations, personnel undertaking monitoring;</li><li>iii) Results of measurements/sample analyses, with error limits;</li><li>iv) Interpretation and review of results;</li><li>v) Validation of accuracy and validity of results, by designated quality assurer.</li></ul>
c) Submission of records	<p>A copy of the quality assured records of each monitoring and sampling result shall be submitted to the Agency within 1 month of its being carried out.</p>

### **F5 Surface water quality monitoring and reporting systems**

#### *Provision of new surface water monitoring system*

F5.1

Unless otherwise agreed in writing with the Agency within 3 months of the date of this modification two new surface water monitoring points, referred to in Table F5.2 shall be established, enabling samples of surface water to be taken up stream and down stream of the field drainage system serving the area of fill. These points shall be physically marked and if necessary maintained by removal of silt, which could interfere with obtaining samples.

- F5.2 Within 6 months of the date of this modification monitoring of surface water quality shall take place from the established monitoring points. The sampling location shall be agreed with the Agency and shall be physically marked, to ensure that periodic measurements of quality are taken at the same position.

**Table F5.2 Locations for surface water monitoring and sampling system**

Surface water monitoring point designation	Location
Point 1	Ditch above site
Point 2	Ditch below site

*Surface water monitoring and sampling programme*

- F5.3 Unless otherwise agreed in writing with the Agency monitoring and sampling of surface water shall be carried out and recorded in accordance with the standards specified in Table F5.3.

**Table F5.3 Standards for surface water monitoring and sampling programme**

Determinands	Monitoring frequencies	Units
Flow Rate	6 Monthly	
pH	6 Monthly	
Temperature	6 Monthly	°C
Electrical conductivity	6 Monthly	mev
Dissolved oxygen	6 Monthly	µg / l
Ammoniacal nitrogen	6 Monthly	µg / l
Chlorides	6 Monthly	µg / l
Chemical oxygen demand	6 Monthly	µg / l

### *Monitoring and sampling records*

- F5.4 A record of the surface water monitoring and sampling results shall be made and submitted to the Agency in accordance with the standards specified in Table F5.4 below.

**Table F5.4 Standards for surface water monitoring and sampling records**

<b>Surface water monitoring and Sampling Records</b>	<b>Specified standards</b>
Quality assurance of monitoring and sampling	<ul style="list-style-type: none"><li>i) Each monitoring point shall permit a representative sample of surface water to be obtained at any time water is flowing ;</li><li>ii) All equipment used to obtain samples shall be free of substances likely to cause a false result when the sample is analysed;</li><li>iii) All samples shall be clearly labelled and the means of transporting them to the laboratory for analysis shall be recorded and traceable;</li><li>iv) All samples shall be analysed at laboratories which have suitable accreditation for the parameters being analysed for;</li><li>v) Any person carrying out sampling shall have been trained in the necessary methods for obtaining a representative and duplicatable sample.</li></ul>
Making of records	<p>All records shall contain the following details</p> <ul style="list-style-type: none"><li>i) Determinands monitored/sampled;</li><li>ii) Specified details of measurements/samples to support analytical and Quality Assurance requirements; e.g. dates, times, locations, other relevant parameters;</li><li>iii) Results of measurements/sample analyses, with error limits;</li><li>iv) Interpretation and review documents.</li></ul>
Submission of records	<p>A copy of the quality assured records of each monitoring and sampling results shall be submitted to the Agency within 1 month of its being carried out.</p>

