



OUTGOING



OTHER

SCHEDULE OF CONDITIONS FOR THE LANDFILL SITE AT -

**CILGWYN LANDFILL DISPOSAL SITE,
CARMEL,
PENYGROES,
GWYNEDD.**

O.S. SHEET 115, 500.540.

LICENCE HOLDER : CWMNI GWASTRAFF MON-ARFON CYF.

LOCAL MANAGER : MR. MERFYN HUGHES.

ADDRESS OF REGISTERED OFFICE OF COMPANY :

**BARCLAYS BANK CHAMBERS,
5/7 BANGOR STREET,
CAERNARFON,
GWYNEDD.**

1. GENERAL CONDITIONS

1.1 References

- 1.1.1** All references to working plan within this licence relates to the document entitled Working Plan, Cilgwyn Landfill Site, Near Penygroes, Gwynedd, Report No.19249/R1, Issue 2, dated September, 1993 and produced by Hydrotechnica of Entec Environmental.
- 1.1.2** In this licence "the site" shall relate to the area of land outlined in "red" on Figure 2 Drawing No. 19249/R1/002 of the working plan, henceforth called "the site". No deposits of waste shall take place outside the area of land outlined in "red" on Figure 2, Drawing 19249/R1/002 of the Working Plan.

1.2 Hours of Operations

- 1.2.1** The hours of operation at the site shall be as detailed in Clause 4.1 of the Working Plan. However, the site shall only be open for the reception of waste between the hours of:-

0800 to 1700 on Monday to Friday

0800 to 1130 on Saturday and

0800 to 1130 on Sundays each week and

from 0800 to 1700 on Bank and Public Holidays with the exception to Christmas day and Boxing Day without the prior written consent of the Waste Regulation Authority.

- 1.2.2** The above specified periods during which the site is permitted to operate shall be termed the working day for the purpose of this licence.
- 1.2.3** No deposit of waste shall take place during the hours covered by Official Lighting Up Times (i.e. half an hour before sunset to half an hour after sunrise) unless lighting, as agreed by the Waste Regulation Authority, is provided.

2. WORKING PLAN

2.1 Working Plan and Phasing

- 2.1.1** Without prejudice to any other provisions of these conditions all operations at the site shall be conducted in accordance with the Working Plan. Any alternations shall require the prior written approval of the Waste Regulation Authority.
- 2.1.2** Details of any proposed amendments to the Working Plan requiring approval by the Waste Regulation Authority by virtue of Condition 2.1.1 of this licence shall be submitted to the Waste Regulation Authority along with the proposed date of implementation at least 1 month before the proposed date of such implementation.

2.1.3 The phasing and direction of waste deposition shall be carried out as detailed in the Working Plan.

2.1.4 Deposit of waste shall be defined for the purpose of this licence as the deposit of waste materials, excluding those materials permitted for use in site earthworks.

3. **TYPES OF WASTE**

3.1 The types and quantities of waste permitted to be deposited at the site shall be as follows:-

- (a) Construction, demolition and excavation waste - which is of a solid nature.
- (b) Industrial wastes as defined in Section 30(3)(b) of the Control of Pollution Act 1974 and in Schedule 3 of the Collection and Disposal of Waste Regulations 1988 - which is of a solid nature.
- (c) Household and commercial wastes, as defined in Section 30(3) a and c of the Control of Pollution Act, 1974 and in Schedule 1, and 4 of The Collection and Disposal of Waste Regulations 1988 - which is of a solid nature.
- (d) Wastes from the sweeping of highways undertaken by Local Authorities or their agents shall be permitted on site.
- (e) Only wastes with a pH greater than 4 and less than 10 and a flashpoint greater than 21⁰C, shall be permitted to be deposited on site.
- (f) Only Group E Clinical Waste as defined by the Health and Safety Commission (HSC)/Health Services Advisory Committee (HSAC) publication "Safe Disposal of Clinical Waste" (HMSO 1992).

- (g) The quantity of clinical waste as defined in Clause 3.1(f) to be deposited at the site shall not exceed 5 tonnes per week.
- (h) The total quantity of waste deposited on the site shall not exceed 55000 tonnes per annum.

3.2 Types of Wastes Not Permitted

The types of waste not permitted at the site shall be as follows:-

- (a) No clinical waste, as defined by Regulation 1(2) of the Collection and Disposal of Waste Regulations 1988 shall be deposited at the site, with the exception of that specifically defined in Clause 3.1(f).
- (b) No waste from renal dialysis shall be deposited at the site.
- (c) No needles, syringes or other sharps defined within the category of clinical waste shall be deposited of the site.
- (d) No waste shall be deposited in drum containers.
- (e) No water soluble industrial material shall be deposited at the site.
- (f) No Special Waste, which is subject to Section 17 of the Control of Pollution Act 1974 and Regulations made thereunder, shall be deposited at the site.
- (g) No types of waste other than those specifically authorised above shall be deposited at the site.
- (h) No liquid waste shall be deposited at the site.
- (i) No wastes which have a pH less than 4 or greater than 10 shall be deposited on site.

3.3 Rejection of wastes

- 3.3.1** All wastes shall be visually inspected to ensure that they conform with the requirements of condition 3.1 of this licence. Wastes which do not conform with the said conditions shall be rejected as being unsuitable for disposal at the site.
- 3.3.2** The Waste Regulation Authority shall be notified immediately of any waste that is rejected as being unsuitable for disposal at the site by virtue of Condition 3 of this licence. The notification shall include the nature and quantity of the waste involved, the date and the time of its rejection, the name and address of the producer of the waste, the registration number of the vehicle delivering the waste and the name and address of the vehicle's driver and operator.

4. SITE PREPARATION

4.1 Off Site Drainage

- 4.1.1** Waste shall not be deposited on any part of the site until drainage water from the surrounding higher land has been diverted from the site, by the construction of surface water cut off drains.
- 4.1.2** All surface water drainage, shall be maintained at all times in original condition. They shall be inspected not less frequently than once per week and kept free from waste, debris or blockage.

4.2 Liquid Storage Facilities - (Diesels, Oils, Etc. for use by Plant and Machinery Site).

- 4.2.1** Waste shall not be deposited on any part of the site until the tanks used for the storage of liquid have been surrounded by an impermeable barrier, capable of impounding 110% of the volume of a single tank or 150% of the volume of the largest tank in a group of tanks. Fill and draw points shall be provided within each bund and locked when not in use.
- 4.2.2** All said tanks used in the storage of liquid shall be labelled to show their contents.

4.2.3 The said tanks and impermeable barriers as required by Condition 4.2.1 of this licence shall at all times be maintained in a condition equivalent to the original standard.

4.2.4 No more than 10% of the bunded areas capacity shall be filled by liquid at any one time.

5 . SITE OPERATION, CONTROL, MANAGEMENT AND EQUIPMENT USED, INCLUDING DOCUMENTATION

5.1 Site Office and Site Support Facilities

5.1.1 Waste shall not be deposited on any part of the site until a site control office and staff facility as detailed in Clause 2.2.2 of Working Plan has been provided and located in the position detailed on Figure 10, Drawing No.19249/R1/010 of the Working Plan.

5.1.2 The site control office and staff facility shall, at all times, be maintained in a condition equivalent to the original standard as detailed in Clause 2.2.2 of the Working Plan.

5.2 Site Identification Board

5.2.1 A site identification board of minimum size 120cms by 90cms, of durable material and finish, shall be displayed at the entrance, showing the site name and licence number, the hours when the site is open and giving the name, address and telephone number of the operator and his local agent and of the Waste Regulation Authority responsible for issuing this licence. It shall also bear the words 'NO UNAUTHORISED TIPPING'.

5.3 Fly Tipping

5.3.1 If the use of the site results in unauthorised deposits of waste, the Waste Regulation Authority shall be notified forthwith and a sign shall be erected to indicate that such deposits are illegal and an offence under the relevant legislation. Any such deposits shall be removed immediately on discovery in accordance with any directions of the Waste Regulation Authority to a disposal point agreed by the Waste Regulation Authority.

- 5.3.2 The Waste Regulation Authority shall be informed immediately by telephone of any waste which is rejected in pursuance of Condition 3. Such waste shall be stored in accordance with Clause 2.2.6 of the Working Plan and disposed of in accordance with the Waste Regulation Authority's instructions.

5.4 Manning Levels

- 5.4.1 The site shall be staffed in accordance with Clause 4.5 of the Working Plan.
- 5.4.2 The site shall, at all times, be manned by at least two operatives when it is open for the reception of waste.
- 5.4.3 A nominated operative or operatives shall man the site control office at all times during which the site is used for the acceptance of waste and shall be responsible for record keeping.
- 5.4.4 A responsible person or persons with the power to act on the operator's behalf shall be designated as responsible for the security and satisfactory operation of the site and the Waste Regulation Authority shall be notified of the persons's name, address and telephone number. A change shall be communicated to the Waste Regulation Authority immediately and confirmed in writing within 7 days.
- 5.4.5 The person(s) designated by Condition 5.4.4 of this licence, shall be responsible for ensuring that all wastes accepted for disposal at the site conform, to the requirements of Condition 3 of this licence.

5.5 Site Plant

- 5.5.1 Site plant will be employed in accordance with Clause 4.6 of the Working Plan, and shall be maintained in accordance with the appropriate manufacturers instructions.

5.6 Weighbridge

- 5.6.1** Waste shall not be deposited on any part of the site until a weighbridge has been provided as detailed in Clause 2.2.3 of the Working Plan and located in the position as detailed on Figure 10, Drawing No. 19249/R1/010 of the Working Plan.
- 5.6.2** The weighbridge shall in accordance with Section 11 of the Weights and Measures Act, 1985 "be passed as fit for the use for trade" and shall accordingly be certified by an Inspector of Weights and Measures.
- 5.6.3** The weighbridge shall be maintained, at all times, in a condition recalibrated "Passed fit for trade" in accordance with Section 11 of the Weights and Measures Act 1985. The Waste Regulation Authority shall be notified by the operator in writing each time the occurrancy of the weighbridge is checked by an Inspector of Weights and Measures.
- 5.6.4** All vehicles delivering waste to the site shall be weighed using the said weighbridge. The net weight of each such load deposited at the site shall be recorded as part of the written records required by this licence.

5.7 Site Diary and Records

- 5.7.1** A written record shall be kept of the types and quantities of waste deposited, the name and address of the persons delivering the waste and the vehicles registration number of every such deposit and identification of the producer of the waste. This written record shall be made available for the inspection by any authorised officer of the Waste Regulation Authority upon demand. A summary of this information shall be forwarded to the Waste Regulation Authority at monthly intervals commencing from the date of this licence.
- 5.7.2** A site diary shall be kept at the site office, in which the following data shall be recorded, fires, site inspections, analysis and monitoring results. The site diary shall be kept up to date and all results and data being entered into it not later than 5 working days after they have become available. The site diary shall be made available for inspection by a duly authorised officer.

5.7.3 All water level data, leachate data, gas monitoring results and all water and leachate analysis results shall be written into the site diary as required to be kept in Condition 5.7.2. A copy of this data shall be forwarded to the Waste Regulation Authority at one monthly intervals.

5.7.4 A register of controlled waste transfer notes will be kept as detailed in Clause 4.3.(i) of the Working Plan, copies of which will remain on file within the registered office for a minimum of 2 years.

5.8 Waste Handling Methods

5.8.1 Waste shall be deposited as part of a phased development as described in Clause 3.2 of the Working Plan.

5.8.2 Waste shall be deposited into tipping bays which will be confined by bunds of inert waste in parallel rows not wider than 50m apart.

5.8.3 Solid waste shall be compacted and formed into a layer as soon as possible after the deposit and not later than the end of the working day in which the waste was deposited.

5.8.4 The depth of a layer of waste shall not, after initial compaction, exceed 2.5 metres.

5.8.5 Waste shall either;

- (i) be deposited on the surface of the site behind the face and partially compacted by the specified compacted equipment before being pushed over the face, or it shall
- (ii) be deposited in the ground forming the base of the site or on a previous layer in front of the face and shall be formed into a compacted layer by being pushed upwards and driven over by the approved compaction plant.

- 5.8.6 The layer of waste shall be formed in one or other of the ways described above using compaction equipment, agreed with the Waste Regulation Authority, equipped with a blade or other levelling device.
- 5.8.7 Before covering, working faces and flanks shall be compacted to form gradients no steeper than 1 in 3.
- 5.8.8 Materials used for landfill, other than that which is wholly non-putrescible, shall be covered progressively with suitable non-putrescible cover material, including the flanks and faces which shall be covered to a depth of not less than 15 centimetres. No further putrescible waste shall be deposited at the site, if it is evident to the operator that material to fulfil the cover requirements of this condition will not be available on that working day.
- 5.8.9 All large articles, such as furniture, crates and hollow containers likely to cause voids, shall be crushed, broken up or flattened and covered each day by other wastes in such a position that they are not within two metres of the of the flank or face.
- 5.8.10 No waste other than that which is wholly none biodegradable and which will not float on water shall be deposited in standing water.
- 5.8.11 Each layer of waste shall be laid to fall to encourage surface water run-off.
- 5.8.12 All Clinical Waste received at the site in accordance with the requirement of Clause 3.1(f) shall be deposited in accordance with one of the following methods;
- Either :** clinical waste shall be deposited in a specially excavated trench in previously deposited waste and shall then be covered with a minimum depth of 1.00 metre of cover consisting wholly of non-clinical waste.
- or :** clinical waste shall be deposited at the base of the working face and immediately covered with a minimum depth of 1 metre of cover consisting of wholly non-clinical waste.

- 5.8.13 Clinical waste as defined in Clause 3.1(f) and deposited in accordance with either requirement of Clause 5.8.12 shall be deposited in such a manner that none of the sacks containing clinical waste shall be broken, split or unsecured and shall not be deposited within 2 metres of base, side walls or cap of any part of the site.

6. **DIFFICULT WASTE**

6.1 **Animal Waste**

- 6.1.1 Animal carcasses and waste consisting wholly or mainly of animal or fish waste or other obnoxious materials shall be deposited in front of the working face and immediately covered with other waste material so that the obnoxious material is not within 1 metre of the surface and 2 metres of the flanks or face.

6.2 **Asbestos Waste**

- 6.2.1 Only high density non special asbestos materials with less than 1% weight of free fibres and not containing crocidolite shall be deposited on site, such waste shall be deposited at a depth of not less than 2 metres from the working surface and flanks of the landfill and covered immediately with working waste in such a manner as to avoid the creation of fibres and dust. The annual deposit of such waste shall not exceed 5% by weight of total waste input per annum.

7. **ENVIRONMENTAL CONTROLS**

7.1 **Dust Suppression**

- 7.1.1 Dust at the site shall be dealt with in accordance with Clause 4.8.1 of the Working Plan.

7.2 **Fire and Fire Precautions**

- 7.2.1 No material shall be burnt within the boundaries of the site.

7.2.2 Any outbreaks of fire shall be treated as an emergency and shall be dealt with in accordance with Clause 5.3 of the Working Plan.

7.3 Litter Control

7.3.1 The measures as outlined in Clause 4.8.3 of the Working Plan shall be adopted to reduce the impact of litter.

7.3.2 Not less frequently than once a week, any loose waste which may be lying on the site shall be gathered and disposed of in such a way as to keep the site tidy.

7.3.3 Materials arrested by both the fixed and movable litter screens shall be removed not later than at the end of the working day so as to maintain the efficiency of the screens and the tidiness of the site.

7.3.4 Any waste material which is blown against the boundaries of the site or which is blown from the site shall be removed before the end of the working day.

7.4 Noise

7.4.1 If, in the opinion of the Waste Regulation Authority Inspector, should noise become a nuisance at the site then operations shall be adjusted immediately to rectify the situation. Full operations at the site will only resume once the Waste Regulation Authority Inspector is satisfied that noise will not constitute further nuisance.

7.5 Site Security and Boundary Fences

7.5.1 Waste shall not be deposited on any part of the site until the site has been provided with fencing of the type and location as detailed on Drawing 1, Drawing No.19249/R1/013.

7.5.2 All fences required by Condition 7.5.1 shall conform to BS 1722 Fences.

- 7.5.3 Waste shall not be deposited on any part of the site until the site entrance has been fitted with 1.8 metre high lockable gates as BS 1722 Part 1 1986, or better.
- 7.5.4 The gates required by Condition 7.5.3 of this licence shall be kept locked shut at all times when the site is unattended.
- 7.5.5 All site fences and gates shall be inspected at intervals of not more than 7 days. Any damage which impairs their effectiveness found during the course of these inspections or at any other time shall be repaired within 5 working days.

If this cannot be achieved then personnel shall be provided to guard the site at all times until such repair is effected.

- 7.5.6 A person shall be designated as responsible for the security and satisfactory operation of the site and the Waste Regulation Authority shall be notified of such persons's name, address and telephone number. Any changes shall be communicated to the Waste Regulation Authority immediately and confirmed within 7 days in writing.

7.6 Site Access and Roads

- 7.6.1 Waste shall not be deposited on any part of the site until a primary road has been provided from the site entrance to the site control office.
- 7.6.2 The primary site road, required by Condition 7.6.1 shall be 3 metres wide, with at least one passing place suitable for two heavy goods vehicles to pass.
- 7.6.3 It shall be constructed as detailed in Clause 2.2.1 the Working Plan.
- 7.6.4 Subsidiary site roads shall be provided and constructed as detailed in Clause 2.2.1 of the Working Plan.

- 7.6.5 The primary site road as required by this licence shall be maintained in good repair. Any cracks or potholes shall be repaired within 5 working days. All such repairs shall be carried out in accordance with the details given in Clause 2.2.1 of the Working Plan.
- 7.6.6 The "primary" site road shall be kept free of mud, stone or waste and shall be swept by a mechanical or vacuum type road sweeper as required.
- 7.6.7 The deposit of mud, stones, wastes or other debris from the site onto the public highway adjoining the site, due to its operation for waste disposal purposes, shall be treated as an emergency. Immediate effective action shall be taken to remove it, including the use of a mechanical vacuum type road sweeper.
- 7.6.8 All subsidiary site roads shall be laid to a fall to encourage surface water run off, and maintained free from potholes.

7.7 **Pest Control**

The site shall be inspected at a minimum of one weekly intervals for infestation by insects and vermin. Disinfestation measures shall be applied as necessary. Records of dates of inspections, disinfection measures applied and notification to the Local Authority under Section 3 of the Prevention of Damage by Pests Act, 1949 are to kept in the site diary.

8. **LANDFILL LINER**

8.1 **Engineering Works**

- 8.1.1 Without prejudice to this condition, all engineering works on the site shall be carried out in accordance with the Working Plan.

8.2 **Faengoch Leachate Barrier**

- 8.2.1 A leachate barrier shall be constructed within Faengoch as illustrated in Figure 3 Drawing No. 19249/R1/003 and detailed in Clause 2.1.2 of the Working Plan.

- 8.2.2 The barrier shall comprise of geosynthetic clay liner (G.C.L.) consisting of a layer of bentonite sandwiched between two geotextiles and shall have a maximum permeability of 1×10^{-9} m/s. The emplacement of this liner and associated engineering working shall be carried out in accordance with Specification of Minimum Standards as detailed in Condition 9 of this licence.

8.3 Gloddfa Glytiau Landfill Liner

- 8.3.1 A landfill lining system for Gloddfa Glytiau shall be designed and constructed in accordance with Clause 2.1.4 of the Working Plan. In addition no waste shall be deposited in Gloddfa Glytiau until further details concerning risk of failure due to differential settlement, shear stresses and an adequate factor of safety in relation to the liner have been submitted to and agreed by the Waste Regulation Authority and National Rivers Authority.

- 8.3.2 The basal and side walls of Gloddfa Glytiau shall be lined with a composite site liner consisting a thick friction surfaced High Density Polyethylene (HDPE) geomembrane minimum thickness of 2mm overlying a geosynthetic clay liner and of a permeability not exceeding 1×10^{-9} m/s or equivalent.

- 8.3.3 The base and specified bunds within the site shall be lined using an artificial liner comprising of HDPE or other material of equivalent properties in accordance with the specification given in Clause 2.1.4 of the Working Plan.

- 8.3.4 Where a HDPE liner or other geomembrane has been specified for any lining or capping of the site it shall be laid, without prejudice to any higher specification in the Working Plan according to the principles outlined in the minimum standards below:

9. SPECIFICATION OF MINIMUM STANDARDS

9.1 Preparation of Subgrade and Material Selection

- 9.1.1 The laying of the subgrade shall be supervised directly at all times by a suitably qualified and experienced engineer. Each stage of the preparation shall be checked to ensure compliance with the specification in the Working Plan and results of any observations, tests or measurements shall be recorded.

- 9.1.2 Subgrade preparation shall be done in such a manner that no damage shall occur to the liner during installation or during the operation of the landfill site.
- 9.1.3 The subgrade surface on which the liner is to be laid shall be free from any debris, protrusions, or organic materials or any other materials which may impair the efficiency of the subsequent liner. To this end the subgrade shall also consist only of inert materials as in the definition found in the accompanying notes.
- 9.1.4 Where the subgrade contains large quantities of oversize stones or clods then it shall be hand picked to ensure their removal so that the surface in direct contact with the liner at no point protrudes more than 5mm above the surface.
- 9.1.5 The subgrade shall be laid so that there are no abrupt changes in the basal subgrade which could cause bridging of the geomembrane liner.
- 9.1.6 There must be no areas of the subgrade subject to softening by water. Any such areas shall be removed and replaced with material that complies with the specification for compaction below. Any area subject to reworking shall be reinspected by the supervising engineer and work shall only proceed where the approval of such is given in writing.
- 9.1.7 Basal subgrades shall be laid to a fall to allow for subsequent leachate drainage and collection systems installation.
- 9.1.8 Where there is any difficulty in achieving the specification of the subgrade as regards particle size and distribution or compaction then a geotextile protective layer shall be employed so long as this does not effect the integrity and stability of the membrane on steep slopes.
- 9.1.9 If any surface cracking or ravelling appears in the subgrade then that area shall be reworked to comply with the minimum specification.
- 9.1.10 The subgrade materials used in earthworks on the site shall be compacted in accordance with the details contained in the Department of Transport's Specification for Highway Works Part 2, Series 600 Earthworks (1986).

- 9.1.11 No work shall proceed on laying the geomembrance liner until the approval of the subgrade is given in writing by the Quality Control Inspector.
- 9.1.12 Where the use of any geomembrane has been specified for use in a landfill site as an impermeable liner then it shall be tested for the following critical parameters:
- (i) Impact Resistance (ASTM D1709, D3029, D3998)
 - (ii) Puncture Resistance (ASTM D2582)
 - (iii) Thermal Expansion (ASTM D2102, D1042)
 - (iv) Environmental Stress Crack (ASTM, D1693)
 - (v) Chemical Resistance (ASTM D543)

Where ASTM refers to American Society for Testing and Materials.

Measurements shall also be taken for Tensile stress at yield and breakage, and for elongation at yield and breakage. A portion of a roll from each delivery shall be subject to testing and the results shall conform with the required values for the parameters as given in the Working Plan. Testing shall ensure also that the sheets conform with the warranty supplied with the liner.

- 9.1.13 Where any liner material has to be stored prior to use on the site it shall be stored so that it is not exposed to dust, vermin, water, extremes of temperature, and in full accordance with any written instructions from the supplier.
- 9.1.14 No roll of liner shall be laid until a roll from that delivery has undergone and satisfactorily passed the series of tests required in Condition 9.1.12 above. Each roll shall also be tested for nominal thickness which must comply with that stated in the Working Plan.

9.2 Installation of the artificial liner

- 9.2.1 The installation of the liner shall be under the direct control of a suitably qualified and competent engineer or equivalent.
- 9.2.2 The immediate areas to be lined shall be kept free from water or any material which may interfere with the integrity of the liner system.
- 9.2.3 No plant or machinery shall be allowed on the subgrade or during the emplacement except that which is required for that work. No machinery shall be allowed on the liner except welding equipment.
- 9.2.4 No roll of liner shall be pushed out by machinery, but shall only be unrolled by hand or from a roller bar behind a machine, or steep slope winches may be used.
- 9.2.5 Temporary anchorage of sheets shall be achieved by using sandbags or other non-intrusive means.
- 9.2.6 No lining material shall be allowed to bridge any unavoidable hollow or undulation in the site. Each sheet shall be laid so as to be smooth with minimum crease or folds in it's surface and maximum surface contact with the subgrade.
- 9.2.7 Panels shall only be laid one at a time and directly after emplacement of the adjacent sheet seaming shall take place. No liner shall be unrolled which cannot be seamed that working day.
- 9.2.8 Where sections of liner are laid adjacent to each other they shall overlap to a minimum of 100mm to allow for welding. Sheets shall be orientated parallel to the slope as far as is practicable.
- 9.2.9 During installation of the liner all machinery shall be checked to ensure it does not cause excessive heat or leak hydrocarbons in the vicinity of the liner.

9.2.10 All precautions shall be taken to prevent damage to the liner. Each sheet shall be checked for damage after emplacement by the Quality Control Inspector and records of compliance shall be made for each sheet laid. No seaming shall proceed until the approval is given by the Quality Control Inspector in writing.

9.3 Welding of the Liner: Including tests to be done on welds

9.3.1 Prior to welding each area to be seamed shall be checked and cleaned in accordance with manufacturers instructions. Immediately before welding each area shall be cleaned using an approved abrasive method which shall remove no more than 10% of the nominal thickness of the sheet.

9.3.2 No use of temporary bonding using adhesives shall be permitted.

9.3.3 No welding shall be undertaken if any of the following circumstances prevail:

(i) Any period of precipitation

(ii) Ambient external temperatures outside of the range 5⁰C to 33⁰C

(iii) High relative humidity or wind velocities greater than 20mph.

9.3.4 Sheet material to be welded shall be preheated directly prior to seaming using hot air at controlled temperatures. Care shall be taken to ensure that the integrity of the material is maintained.

9.3.5 Where extrudate is to be used in seaming it shall be identical in manufacture to the material of the sheets to be joined.

9.3.6 The technique used for welding shall be one approved by the liner manufacturer and tested prior to emplacement of the liner on a representative piece of the material.

- 9.3.7 The weld seam shall be not less than 30mm and shall be continuous on each length so far as is practicable.
- 9.3.8 Prior to each period of welding and at a minimum of five hourly intervals test seams shall be done using each piece of seaming apparatus, these tests shall be done with pieces of liner representative of the whole and on the actual subgrade type that the liner is to be placed on.
- 9.3.9 All welding tests shall be done using destructive and non destructive testing methods. Only if the samples pass the tests shall seaming continue, additional tests on any seam may be requested by the Quality Control Inspector or the Waste Regulation Authority if there is doubt about the quality of the weld in any region.
- 9.3.10 Where any area of the liner or any seam is found to be faulty, or where any part of the liner is removed for any purpose, the area shall be patched using appropriate pieces of the same specification liner using a hand extruder which complies with the testing regime previously stated.
- 9.3.11 The testing regime for seams on the liner shall be agreed between the operator and the Waste Regulation Authority in writing prior to installation of the liner. This shall be strictly monitored on site by the Quality Control Inspector who will be responsible for ensuring compliance with the specified details. The Quality Control Inspector shall construct an as laid record of the liner emplacement including results of all tests and of all remedial works undertaken on site. Such records shall form the compliance document for the site liner.
- 9.3.12 No protective material shall be placed over the liner until the approval of the installation and any repairs or modifications has been given in writing by the Quality Control Inspector.
- 9.4 **Protective covering of the liner and initial deposits of waste**
- 9.4.1 Directly after the written approval of the liner installation is received the liner shall be protected by the emplacement of a free draining blinding layer, sand, fine slate or similar material, of a minimum depth of 0.3m.

- 9.4.2 The material used for the protective layer shall be inert as defined in the attached note and shall be such that it shall in no manner detract from the efficiency of the liner system as installed.
- 9.4.3 Where drainage pipes are to be laid on the base of the site care shall be taken to prevent damage to the liner and in laying the blinding layer not to disturb the replacement of those pipes.
- 9.4.4 The blinding layer shall be placed in such a manner that no damage shall be done to the liner system and so that no machinery shall at any time be in contact with the liner surface.
- 9.4.5 The first layer of waste deposited on the site next to the blinding layer shall consist only of material which will not penetrate the blinding layer. To this end it shall be free of large, intrusive or sharp objects greater in size than that which would equate to one third of the depth of the blinding layer.
- 9.5 Quality Control
- 9.5.1 The results of all quality testing on the liner installation, as carried out by the approved independent Quality Control Inspector, shall be forwarded to the Waste Regulation Authority as soon as practicable, and in any case within 3 days of results being known.
- 9.5.2 The site shall not be approved for the acceptance of waste unless there is produced a full compliance document signed and approved by a suitably qualified Quality Control Inspector to say that liner emplacement was in full accordance with the minimum specification and the agreed Working Plan.
- 9.5.3 The Quality Control Inspector shall be an independent engineer with appropriate geotechnical experience. The person employed to carry out the Quality Control the Waste Regulation Authority prior to the start of any lining engineering carried out.

10. ENVIRONMENTAL MANAGEMENT AND MONITORING

10.1 Surface Water

10.1.1 Surface water monitoring shall be carried out in accordance with Clause 6.4 of the Working Plan.

10.1.2 A surface water sample shall be taken of the discharge issuing from the drainage adit shown in Figure 2 Drawing No. 19249/R1/002 of the Working Plan and as a minimum shall be analysed for the following determinants at the following frequencies:

Weekly - Discharge volume
 pH
 Temperature
 Electrical conductivity

Monthly - Discharge volume
 pH
 Temperature
 Electrical conductivity
 Ammoniacal nitrogen
 Chlorides
 BOD

3 Monthly - Discharge Volume
 pH
 Temperature
 Electrical Conductivity
 Ammoniacal Nitrogen
 Chlorides
 BOD
 COD
 Sulphates
 Alkalinity as Ca CO₃
 TOC
 TON
 Na
 K
 Ca
 Mg

12 Monthly - Discharge Volume
pH
Temperature
Electrical Conductivity
Ammoniacal Nitrogen
Chlorides
BOD
COD
Sulphates
Alkalinity as Ca CO₃
TOC
TON
Na
K
Ca
Mg
Fe
Mn
Cd
Cr
Cu
Ni
Pb
Zn

10.2 Groundwater

10.2.1 Ground water monitoring shall be carried out in accordance with Clause 6.2 of the Working Plan.

10.2.2 Ground water from BH4, BH5 and BH6 the location of which are detailed in Drawing 1, Drawing No.19249/R1/013 of the Working Plan shall be sampled for the following determinants at the following frequencies:-

Weekly - Water level
pH
Temperature
Electrical Conductivity
Dissolved Oxygen
Ammoniacal Nitrogen
Chlorides

3 Monthly - Water Level

pH
Temperature
Electrical Conductivity
Dissolved Oxygen
Ammoniacal Nitrogen
Chloride
Sulphates
Alkalinity as Ca CO₃
TON
TOC
Na
K
Ca
Mg

- 10.2.3 The three monthly groundwater samples shall be taken immediately after purging of the boreholes to ensure representative samples are obtained.

10.3 Leachate Monitoring Points

- 10.3.1 Leachate shall be monitored in accordance with Clause 6.3 of the Working Plan.
- 10.3.2 Leachate monitoring wells in Faengoch and Gloddfa B shall form part of the landfill gas vents and shall be progressively constructed within the waste as the levels within the site are raised. They shall be located at the landfill gas vent location as detailed on Drawing 2, Drawing No.1924/R1/014 of the Working Plan. Leachate within Gloddfa A shall be sampled from the leachate sump.
- 10.3.3 Leachate samples shall be taken from the leachate sump and landfill gas vents as detailed on Drawing 2, Drawing No.19249/R2/014 of the Working Plan and shall as a minimum be sampled for the following determinants at the following frequencies:-

Monthly - Leachate level

pH
Temperature
Electrical Conductivity.

12 monthly - Leachate Level
pH
Temperature
Electrical Conductivity
Ammoniacal Nitrogen
Chlorides
Sulphates
Alkalinity as Ca Co₃
COD
BOD
TOC
TON
Na
K
Ca
Mg
Fe
Mn
Cd
Cr
Cu
Ni
Pb
Zn

10.4 Results

10.4.1 All surface water groundwater and leachate samples shall be analysed at National Measurement Association Scheme (NAMAS) accredited laboratory. A copy of the results of all water and leachate monitoring shall be forwarded to the Local Waste Regulation Authority and National Rivers Authority at 3 monthly intervals.

10.5 Leachate Management

10.5.1 Within 1 month of the date of issue of this licence flow measurements shall be taken of the water issuing from the adit as detailed on Figure 2, Drawing No. 19249/R1/002. A true copy of the details of these measurements shall be submitted to the National Rivers Authority and Waste Regulation Authority within 8 weeks of the date of issue of this licence.

- 10.5.2 A leachate drainage system within Faengoch shall be employed as detailed in Clause 2.1.5.1 Part (a) of the Working Plan. Should the water quality issuing from the adit detailed in Figure 2, Drawing No. 19249/R1/002 fall below the quality standard set by the National Rivers Authority, then the leachate control measures shall be adopted as detailed in Clause 5.2 of the Working Plan, and the leachate will be disposed in accordance with Clause 2.1.5.3 of the Working Plan. Details of the proposed dam construction as detailed in Clause 5.2 of the working plan shall be submitted to the National Rivers Authority and Waste Regulation Authority within 3 months of the date of issue of this licence. The dam shall not be constructed until the design has been agreed in writing by the National Rivers Authority and Waste Regulation Authority.
- 10.5.3 A leachate drainage system within Gloddfa A and Gloddfa B as located on Drawing 1, Drawing No. 19249/R1/013 of the Work Plan shall be employed as detailed in Clause 2.1.5.1 parts (b) and (c) of the Working Plan.
- 10.5.4 The leachate drainage well proposed for Gloddfa A shall be constructed as detailed in Figure 9, Drawing No.19249/R1/009 of the Working Plan and shall be maintained in a good state of repair at all times.
- 10.5.5 Leachate pumped from the leachate well constructed in Gloddfa A, shall be treated and disposed of in accordance with Clause 2.1.5.3 of the Working Plan.
- 10.5.6 Where it is proposed to remove leachate off site, the name, location and licence number of the disposal/treatment facility shall be made known to the National Rivers Authority and Waste Regulation Authority within 1 month of the date of issue of this licence.
- 10.5.7 An on site leachate treatment plant shall not be constructed until the design and location of such a facility has been agreed in writing by the National Rivers Authority and Waste Regulation Authority.

11. LANDFILL GAS

11.1 Monitoring

- 11.1.1 Landfill gas vents shall be progressively constructed within the waste as the waste levels are raised, these shall be located as detailed on Drawing 2, Drawing No. 19249/R1/014 of the Working Plan.
- 11.1.2 All landfill gas vents shall be constructed as detailed in Figure 11, Drawing No.19249/R1/011, and shall be maintained in a good state of repair at all times.
- 11.1.3 Monitoring for methane carbon dioxide and oxygen shall be carried out at BH4, BH5, BH6, BH9, B10, BH11 and BH12 of the Working Plan. This monitoring shall be carried out by taking a minimum of three repeated readings from each monitoring point during the course of one day at intervals of not more than 7 days. In addition boremetric pressure, gas temperature and gas pressure shall be recorded on a monthly basis.
- 11.1.4 Monitoring shall be carried out by the use of portable gas equipment. All such portable gas detection equipment used for landfill gas monitoring shall be calibrated in accordance with the manufacturers instructions for the gas it is intended to monitor.
- 11.1.5 If during the course of said gas monitoring, concentrations of flammable gas above 20% of the Lower Explosive Limit or carbon dioxide in excess of 0.5% by volume is detected in any building, property, duct or statutory undertakers service, or in borehole BH9, BH10, BH11 and BH12 the Waste Regulation Authority shall be notified immediately by telephone. The situation shall be treated as an emergency and the site's emergency plan shall be implemented.
- 11.1.6 The results of all gas monitoring required by this Licence shall be recorded in the site diary. In addition the date, time, weather conditions, state of the tip, i.e. age, and person reasonable for monitoring shall be record in the site diary.

- 11.1.7 Staff shall be instructed and trained in;
- (i) use of equipment
 - (ii) safety procedures (including entry into confined spaces)
 - (iii) emergency procedures
 - (iv) health of staff (reference asthmatics, procedures when exposed to hazardous materials).

11.2 Landfill Gas Control

- 11.2.1 A landfill gas control system for Faengoch shall be employed as detailed in Clause 2.1.6.1 of the Working Plan.
- 11.2.2 A landfill gas control system for Gloddfa Glytiau shall be employed as detailed in Clause 2.1.6.2 of the Working Plan.
- 11.2.3 Should the above landfill gas control measures prove ineffective then further gas control measures as agreed with the Waste Regulation Authority shall be employed.

11.3 Maintenance

- 11.3.1 If any boreholes as required in this licence, should at any time become unsuitable for sampling, they shall be made suitable to sample or replaced within six weeks from the date that they are first found to be unsuitable.

11.4 Other Parameters

- 11.4.1 At not less than 12 monthly intervals void utilisation and settlement of the site shall be determined. The results of this assessment shall be forwarded to the Waste Regulation Authority within 1 month of such work being carried out.

12. SITE RESTORATION

12.1 Site Capping

- 12.1.1 Once the final levels have been achieved the site shall be capped in accordance with Clause 7.1 of the Working Plan.
- 12.1.2 The final layer of waste deposited prior to capping shall be subject to the minimum compaction and shall be to a depth of not less than 1m and kept free of materials likely to interfere with the final restoration or subsequent use.
- 12.1.3 Restoration of the site shall be carried out in accordance with Clause 7.2.2 of the Working Plan. Faengoch will be progressively restored in phases in accordance with Drawing 3, Drawing No. 19249/R1/015.
- 12.1.4 Initial restoration shall be to the contours in accordance with Drawing No. 19249/R1/016 which shall allow for a maximum of 20% surcharge contours. Final restoration at the site shall be to the contours in accordance with Drawing 4, Drawing No. 19249/R1/016 of the Working Plan. The final capping layer shall have a permeability after emplacement of not greater than 1×10^{-9} m/s. The liner design shall be such that the integrity of the cap is not effected by post settlement.
- 12.1.5 The impermeable cap shall be covered with at least 0.5m. of subsoil and soil to prevent desiccation, penetration of roots or erosion. Such capping shall not be allowed to effect the integrity of the gas venting scheme.

13. EMERGENCY PLAN

13.1 General

- 13.1.1 Where there is a release of any material from the site, which exceeds the trigger levels detailed in Clause 11.1.5 of the licence, and those trigger levels provided by the National Rivers Authority in relation to water quality, then the emergency plan provided by Section 5 of the Working Plan shall take effect.

13.1.2 Should the monitoring of gas levels in any building associated with, or adjacent to the site lead to a decision to evacuate then procedures as detailed in Clause 5.1.3 of the Working Plan shall be adopted. In any case the Waste Regulation Authority shall be notified immediately.

14. DISPLAY OF LICENCE

14.1.1 A copy of the Site Licence shall be displayed at the site control office at all times.

14.1.2 All staff employed at the site shall be familiar with the terms of the licence and Working Plan, especially with the details given in Section 5 entitled Emergency Procedures.

NOTES

These notes are for the general guidance of the Licence Holder and they do not constitute an authoritative of the law.

1. This licence only relates to the requirements in the Control of Pollution Act 1974 for the deposit of controlled waste or the use of plant or equipment subject to the conditions set out in the schedule and does not constitute a consent required by any other legislation. In particular it is the responsibility of the licence holder to comply with any requirements of the Health and Safety at Work etc. Act 1974, the Radioactive Substances Act 1960, the Town and Country Planning Acts, water protection and environmental health legislation.
2. If the licence holder ceases to occupy the land specified above then he may transfer the licence to the new occupier after giving notice, in writing, to the Council's Licensing Officer that he proposes to transfer the licence on a day specified in the notice. The Council has the right to decline to accept the new licence holder.
3. If the licence holder wishes to cancel this licence, he must return it to the Council's Licensing Officer, together with a notice stating that he no longer requires the licence. Cancellation of the licence will not affect any outstanding liability of the licence holder under the conditions of the licence.
4. The Council has the right to revoke this licence or vary its conditions in accordance with the provisions of the Control of Pollution Act 1974.
5. The deposit of controlled waste or the use of plant or equipment for the purpose of disposing of controlled waste otherwise than in accordance with the conditions in this licence or the Control of Pollution Act 1974 constitutes a criminal offence.
6. (a) Inert waste means: waste which is without active chemical, physical, physiological or biological properties and which does not exert "Biochemical Oxygen Demand" in contact with water (as determined by mixing one part material to two parts by weight of aerated water at 20°C, shaking for half an hour, filtering the mixture with FGC (Glass-fibre) filter paper and conducting a standard five day biochemical oxygen demand test on the elutriate so as to make it anaerobic, i.e. devoid of oxygen. The material shall also not contain a significant water soluble content.

- (b) In this licence, "household waste", "commercial waste" and "industrial waste" shall have the same meanings as in the Control of Pollution Act 1974.
- (c) In this licence, non-hazardous waste is to be regarded as waste which does not contain substances in such quantities or concentrations as to subject persons or animals to material risk of death, injury or impairment of health or as to threaten the pollution or contamination (whether in the surface or underground) of any water supply.
- (d) In this licence, Special Waste shall be as defined in the Control of Pollution (Special Waste) Regulations, 1980 (S.I.1980 No.1709) made pursuant to Section 17 of Control of Pollution Act 1974.
- (e) In this licence, Difficult Wastes, includes wastes which could in certain circumstances be harmful in either in the short or long term to the environment and also those wastes whose physical properties present handling problems. A list of those materials considered to be classified as difficult waste are included in Appendix 7(c) of Waste Management Paper No.26, 1986 (ISBN 01175 18913).