WASTE DISPOSAL LICENCE APPLICATION NUMBER LA198 FOR BROCK PLC, LANDFILL SITE AT LAND ADJOINING STAG LANE BY SEA VIEW FARM, EWLOE, DEESIDE CLWYD.

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A GENERAL - SITE LICENCE, WORKING PLAN AND OPERATIONS

A1 Site Covered by Licence

These licence conditions shall only apply to the site shown hatched black on the attached plan number LA198/P1.

A2 Operation of the Site

The site shall be operated in accordance with the methods of operation described in the accepted Working Plan so as to prevent nuisance or detriment to the amenity, risk of water pollution or danger to public health.

A3 Display of Site Licence and Working Plan

(a) Display of Site Licence

A copy of this licence including the conditions and any modifications thereto shall be displayed at all times in the site control office in a prominent position. All site operatives shall be fully conversant with the contents thereof.

(b) Inspection of Working Plan

The current issue of the Working Plan shall be made available for inspection at the site office at any reasonable time by:-

(i) Any site operatives
(ii) Any authorised representative of the Waste Regulation Authority.

A4 Working Plan

The "Working Plan" shall be as defined by Waste Management Paper Number 4 and any accepted Working Plan shall form part of this licence. However, in the event of any proposals or details in the Working Plan being in conflict with the licence conditions, the licence conditions shall prevail.

(a) Acceptance of Working Plan

For the purposes of this licence, the "Working Plan" shall consist of the latest issue or modification of the Working Plan which has been accepted in writing by the Waste Regulation Authority.

(b) Responsibility of Licence Holder

Acceptance by the Waste Regulation Authority of any Wokring Plan shall not relieve the licence holder of their responsibility to ensure that any or all of the following do not occur:-

(i) Pollution of the environment;
(ii) Harm to human health and/or
(iii) Serious detriment ot the amenities.

A5 **Modifications to and Acceptance of the Working Plan**

The current issue of the Working Plan shall not be revised, altered or otherwise modified unless a copy of the proposed revision, alteration or other modification has been submitted to the Waste Regulation Authority in writing and is accompanied by an application for a modification to the waste disposal licence for the site.

A6 **Contact Details**

Prior to the acceptance of any Working Plan, the licence holder shall provide to the Waste Regulation Authority in writing the name, business address and telephone number of:-

(i) The person or persons having authority to accept or reject waste at the site;

(ii) The person or persons responsible for the day to day control of operations on the site;

(iii) The person or persons responsible for site security;
(iv) The person or persons responsible for ensuring that the conditions of this licence are complied with.

Any change in these details shall be notified in writing to the Waste Regulation Authority within 24 hours of the change occurring.

A7 **Emergency Contact Details**

Prior to the acceptance of the Working Plan, the licence holder shall inform the Waste Regulation Authority in writing of the name, address and telephone number of a responsible person for contact in the case of an emergency arising in connection with the facility;

(i) During normal operating hours;

(ii) Outside normal operating hours.

Any change in these details shall be notified in writing to the Waste Regulation Authority within 24 hours of the change occurring.

A8 **Notifications Under Licence Conditions**

Any notification the licence holder is required to make under the conditions shall be made to:

Director of Technical Services,
F.A.O. Waste Regulation Section
Alyn and Deeside District Council
Civic Offices
St David's Park
Ewloe
Deeside
Clwyd
CH5 3PW

Telephone Number (0244) 525000
Facsimile Number (0244) 525323

B PERMITTED AND NON-PERMITTED WASTES

B1 Permitted Types and Quantities of Waste

(a) Only the types of waste specified in Appendix 1 attached to this licence shall be permitted to be deposited in the site.

These materials shall not be admixed with any other non-listed material.

All soils accepted for disposal at the site shall be within the permitted contamination levels Classes A to E (inclusive), as specified in Appendix 2 attached to this licence. Where soils fall within either of the contamination Classes D or E, a copy of documentation confirming that the soil is not a 'special waste' as defined by the Control of Pollution (Special Waste) Regulations 1980 shall be provided to the Waste Regulation Authority prior to acceptance of the soil at the site.

(b) The total quantity of wastes accepted daily shall not exceed 2550 tonnes or 2550 cubic metres whichever is the lesser amount.

(c) Material used for intermediate cover shall only include wastes which falls within the contamination limits of Class A as defined in Appendix 2 attached to this licence, provided that such wastes ~~are~~ neither flammable, degradable nor putrescible.

B2 Packaged and/or Pre-treated Wastes

Where waste types are not permitted to be deposited under the provisions of this licence then those waste types shall not be deposited whether or not they have been packaged, placed in other containers or waste materials or pre-treated by any form of solidification or encapsulation.

B3 Malodorous Wastes

Wastes which could give rise to an objectionable odour to persons outside of the boundary of the site shall not be handled, stored or deposited on the site unless specific handling, storage and disposal techniques and any associated measures are being used so as to prevent such a nuisance arising.

B4 **Special Wastes**

No special waste as defined by the "Control of Pollution (Special Waste) Regulations 1980" is permitted to be deposited under the provisions of the conditions of this waste disposal licence.

B5 **Asbestos**

No asbestos or waste containing asbestos is permitted to be deposited under the provisions of the conditions of this waste disposal licence.

B6 **Waste in Drums**

Waste contained in drums is not permitted to be deposited under the provisions of the conditions of this waste disposal licence.

B7 **The Deposit of Wastes Other Than Controlled Wastes**

The deposit of wastes other than controlled wastes as defined in The Collection and Disposal of Waste Regulations 1988 is not permitted under the provisions of this waste disposal licence.

C CONTROL OF WASTE DISPOSAL OPERATIONS

C1 Checks on Incoming Wastes

All loads of waste received at the site shall be checked prior to their deposit in the site by the booking-in clerk to ensure that the waste types conform to the requirements of Conditions B1 to B7 (inclusive). The check shall consist of the following:-

(a) Visual Checks Prior to Deposit

A visual check shall be made of the contents of all incoming loads of waste, transported in open topped vehicles only, to ensure their suitability for deposit in the site. This check shall be carried using equipment provided in accordance with the requirements of Condition E7. Any cover shall be removed from the load being inspected prior to this check being carried out.

(b) Analysis Prior to Deposit

All wastes for which there is reason to suspect that the waste may be contaminated shall be sampled and the samples subjected to full analysis as specified in Appendix 3.

The results of any such analysis shall be compared with the contamination classification listings of Appendix 2 to ensure that the waste is suitable for deposit in the site prior to any deposit of the suspect waste in the site taking place.

(c) Visual Checks Following Deposit

All wastes deposited at the site shall be checked immediately following deposit and prior to being machined or otherwise covered, to ensure their deposit in the site is permitted by the conditions of this waste disposal licence.

C2 Non-Conforming Wastes

(a) All wastes not conforming to the requirements of Condition B1 shall be turned away or removed from the site in accordance with the Working Plan.

(b) When such non-conforming wastes cannot be turned away or removed immediately upon the discovery that they are not permitted to be deposited in the site they shall be stored in an area of the site, away from the area of the site being landfilled, for no more than 7 days and shall then be removed from the site to a suitably licensed waste disposal facility.

(c) A record shall be kept of all such incidents and the Waste Regulation Authority informed by telephone immediately upon their occurrence.

C3 **Sampling**

Samples of any waste entering the site or undergoing disposal on the site and samples of any gaseous, liquid or particulate emissions from the site shall be taken under the direction of the Waste Regulation Authority.

The operator shall provide any reasonable assistance in the form of site personnel and/or equipment to the Waste Regulation Officer/s on request to enable such samples to be taken.

Any information required to enable the sampling to be carried out in accordance with the provisions of the Control of Substances Hazardous to Health (COSHH) Regulations 1988 (or any subsequent replacement legislation) shall be provided to the Waste Regulation Authority on request.

D SITE RECORDS

D1 Site Records

Site records shall be kept as specified in (a) to (f) below and as summarised in Appendix 4 to this licence.

(a) Inputs/Deliveries of Waste to the Site

(i) A record shall be kept of the types and quantities of waste delivered to the facility. Any such record shall include the following details:-

(1) The person or company delivering the waste
(2) The source of the waste
(3) The time and date of the delivery
(4) The registration mark of the vehicle delivering the waste
(5) The name of the driver
(6) A description of the waste and the quantity of the waste in the load

This record shall be signed by the site operative booking in the load and by the driver of the vehicle delivering the waste.

(ii) The recorded description of the waste shall conform with the requirements of the Duty of Care.

(b) Outputs/Removals of Waste From the Site

(i) A record shall be kept of the types and quantities of waste removed from the facility. Any such record shall include the following details:-

(1) The person or company removing the waste
(2) The source of the waste (if known)
(3) The time and date of the removal
(4) The registration mark of the vehicle delivering the waste
(5) The name of the driver
(6) A description of the waste and the quantity of the waste in the load
(7) Details of the final destination of the waste.

This record shall be signed by the site operative checking the load and by the driver of the vehicle removing the waste.

(ii) The recorded description of the waste shall conform with the requirements of the Duty of Care.

(iii) All waste being removed from the site for the purpose of disposal shall be consigned to a suitably authorised disposal facility.

(c) Daily Summaries of Waste Deposits and/or Removals

A daily summary of the records required to be kept under (a) and (b) above shall be made within one week of the original records being made. The summary shall include the following details for each day:-

(1) Waste Type
(2) Total quantity per waste type (in tonnes or cubic metres)
(3) The district of origin of the waste.
(4) Whether the waste was removed from site or deposited in the site.

(d) Monthly Totals

The quantity of waste deposited per waste type per month shall be calculated using the daily summaries required by (c) above.

(e) Analyses of Soils and Other Wastes

A record shall be kept of all analyses of soils and other wastes carried out in accordance with the requirements of Condition C1(b). This record shall include the results of all such analyses and the record of each such analysis shall include a summary interpretation thereof.

(f) Monitoring of Surface Waters, Groundwater and Leachate

A record shall be kept of all conductivity measurements and all analyses of samples of

(i) surface waters arising from the site;

(ii) groundwater and

(iii) leachate

carried out in accordance with the requirements of Conditions I3, I4 and I5 respectively. The record of each such analysis shall include a summary interpretation of the results.

Additionally, a record shall be kept of all measurements of groundwater flow and groundwater levels respectively required to be taken by Condition I4.

(g) Measurements of Landfill Gas Concentration

A record shall be kept of all measurements of concentrations of flammable gas, carbon dioxide and oxygen carried out in accordance with the requirements of Condition I6.

(h) Measurements of Site Levels and Remaining Volume

A record shall be kept of the site levels relative to Ordnance Datum and of the remaining volume to be landfilled in all unfinished areas of the site. This record shall be updated at regular intervals and in any case not less frequently than once every year.

D2 **Retention and Surrender of Records**

All records required to be kept under the Condition D1 shall be securely kept at the site office or at the licence holders offices at:

Brock PLc
New Hey
Chester Road
Great Sutton
South Wirral
L66 2LS.

The licence holder shall keep these records for the duration of this site licence unless otherwise authorised in writing by the Waste Regulation Authority. The licence holder shall surrender these records to the Waste Regulation Authority upon termination of this site licence, whether the termination is by surrender or revocation.

D3 **Submission of Copies of Records and the Inspection of Records**

Copies of the records specified in Condition D1 shall be submitted to the Waste Regulation Authority, in writing as follows (As summarised in Appendix 4 attached to this licence):

(a) Waste Movements to and from the Site

A copy of the daily summaries for waste deposited in or removed from the site for each calendar month shall be sent to the Waste Regulation Authority within 2 (two) weeks of the end of the next calendar month.

(b) Analysis of Soils and Other Wastes

A copy of the record of all analyses carried out in accordance with the requirements of Condition D1(e) including any summary interpretations thereof shall be forwarded to the Waste Regulation Authority in writing within one month of the results of the analysis having been carried out.

(c) Daily Summaries of Waste Deposits and/or Removals and Monthly Totals

A copy of the records required by Condition D1(c) and (d), specifically daily summaries and monthly totals thereof, shall be provided to the Waste Regulation Authority in writing not later than 14 (fourteen) days after the end of the calendar month to which the records relate.

(d) Monitoring of Surface Waters, Groundwater and Leachate

A copy of the record of all levels, flow rates, conductivity measurements and analyses of water samples carried out in accordance with the requirements of Condition D1(f) including any summary interpretations thereof shall be forwarded to the Waste Regulation Authority in writing at the frequencies specified in Condition I3 (for records relating to surface water monitoring), I4 (for records relating to groundwater monitoring) and I5 (for records relating to leachate monitoring).

(e) Measurements of Landfill Gas Concentrations

A copy of the record of the measurements of concentrations of gases made in accordance with the requirements of Condition D1(g) shall be submitted in writing to the Waste Regulation Authority within 7 (seven) days of the measurements being taken.

(f) Measurements of Site Levels and Remaining Volume

A copy of any measurements taken or calculations made in accordance with the requirements of Condition D1(h) shall be submitted to the Waste Regulation Authority within 1 calendar month of the measurements being taken.

D4 **Inspection of Records**

Any records required to be kept in accordance with the requirements of Condition D1 shall be made available to any authorised representative of the Waste Regulation Authority for inspection at any reasonable time.

E SITE FACILITIES AND INFRASTRUCTURE

E1 Site Office

No waste shall be received at the site unless a site office with welfare facilities has been provided. It shall be adequately equipped and manned to allow the requirements of the conditions of this licence to be routinely carried out.

E2 Site Identification Board

No waste shall be received at the site unless a site identification board, of minimum dimensions 750mm by 750mm, with the following details is prominently displayed at the entrance to the site:-

(1) Name of the site
(2) Name address and telephone number of the licence holder (including an emergency contact telephone number)
(3) Licence number
(4) Opening Hours of the site
(5) Name address and telephone number of the authority who issued the licence.

The notice board shall be maintained at all times so that it is legible.

E3 Site Security and Fencing

No waste shall be deposited until a stockproof fence has been constructed around the perimeter of the site, and lockable gates have been installed at the site entrance. The fence and gates shall be constructed to the British Standard 1722 (Parts 1 and 2).

The fencing and gates shall be inspected each working day and any damage or holes repaired within 2 (two) days (48 hours) of the damage being detected. A record shall be made in the site diary of the date and time of inspection and the location of any holes found.

Gates shall be locked out of working hours other than in the case of an emergency situation and in any case whenever the site is not manned.

E4 Construction of Site Roads

The site access road (the primary road) for incoming and outgoing loads of waste shall be constructed on a sound foundation such as a 0.25 metre thick layer of compacted hardcore or similar material, together with a top covering of 0.1 metres of smooth clean bituminous tarmacadum or concrete.

Any other site road (the subsiduary site roads) for incoming and outgoing loads of waste shall be constructed on a sound foundation such as compacted hardcore or similar material to a minimum height of 0.3 metres above the level of the ground the loads traverse.

The surface of all site roads shall be laid to a fall to encourage surface water run-off.

E5 **Prevention of Deposition of Mud on the Highway**

To prevent the deposition of mud on the highway and to keep access to the site safe and reliable, the licence holder shall ensure that:-

(a) All vehicles leave the site only after using the wheel cleaning equipment provided by the licence holder; and

(b) All site roads are cleaned as necessary so that they are kept mud free.

Any wheel cleaning equipment provided shall consist of a strategically positioned cattle grid, wheel spinner, water trough, high pressure waste jet or a combination of any of the above. Details of the location and type of wheel cleaning equipment provided shall be supplied in writing to the Waste Regulation Authority for incorporation into the Working Plan before the equipment is installed. Additionally, the equipment shall be installed and fully operational prior to the commencement of any works on the site including engineering works which are required, under the provisions of this licence, to be carried out prior to any waste being deposited in the site.

E6 **Maintenance of Site Roads**

All site roads shall be maintained in good repair and shall be inspected daily for cracks and potholes. Any cracks and/or potholes shall be repaired within 5 (five) days of the cracks or potholes being discovered. All such repairs shall be carried out to the specifications set out in Condition E4 above.

E7 **Inspection Facility for Incoming Waste**

No waste shall be received at the site until a suitable facility for the visual inspection of incoming loads of waste has been provided at the site office and shall consist of a strategically positioned mirror or similar aid.

The equipment provided to allow this inspection facility shall be maintained in good working order at all times.

E8 **Fuel Storage Tank**

All fuel stored on site shall be contained in a bunded tank provided and constructed in accordance with the specification set out by the National Rivers Authority. The base and bund walls shall be impervious and shall provide containment for at least 110% of the maximum volume of the tank. All fill and draw pipes shall be retained within the bund.

Any liquid or debris which gathers within the bunded area shall be removed and disposed of at suitably licensed waste disposal facility, as necessary, to ensure that containment for at least 110% of the maximum volume of the tank is provided for continually.

F SITE OPERATIONS

F1 Opening Hours

The site shall be permitted to be open for the receipt, removal, deposit and/or handling of all wastes permitted by Condition B1 during the hours specified below:-

Monday to Friday	07:30 to 18:00 Hours
Saturday	07:30 to 12:30 Hours

No waste shall be deposited outside of these hours except in the case of an emergency with the prior consent of the Waste Regulation Authority.

No waste shall be deposited during the hours covered by official lighting up times (as published by the Science and Engineering Research Council) unless adequate lighting of at least 50 lux has been provided to illuminate the working area and is in use. Any such lighting provided must be independent of the vehicle lighting.

Any lighting provided shall be screened or directed to ensure that neighbouring properties are not affected by the light during operating hours.

F2 Staffing

Appropriately trained and experienced supervisory and/or operating staff shall be made available as and when required to ensure that the conditions of this licence are fulfilled. The appropriate level of training shall be as specified in the Working Plan.

A minimum of two operatives, shall be on site whenever waste is being deposited or removed.

F3 Machinery Plant and Equipment

An appropriate level of machinery, plant and equipment shall be provided to ensure that all incoming waste, surface water drainage arisings, leachate arisings and landfill gas arisings are dealt with in accordance with the Conditions in this licence. All such machinery, plant and equipment shall be as specified in the Working Plan. Operational instructions for such machinery, plant and equipment shall be kept in the site office.

Silencers shall be fitted, maintained and used on all machinery, plant and equipment in accordance with the manufacturers recommendations.

In the event of any breakdown of such machinery, or equipment which results in either waste or surface water arisings, leachate arisings, or landfill gas arisings not being dealt with in accordance with the conditions of this licence, the site shall be closed until such time as the defective items are repaired or replaced, unless otherwise authorised by the Waste Regulation Authority in writing.

F4 **Temporary Cessation of Operations**

All temporary cessations of operations which require the to facilities elsewhere shall be notified in writing to the Waste Regulation Authority within 48 hours of the diversion occurring.

F5 **Commencement and Recommencement of Landfilling**

Not less than 7 days' notice shall be given in writing to the Waste Regulation Authority of the date on which landfilling is to commence.

Not less than 14 days' notice shall be given in writing to the Waste Regulation Authority of the date on which landfilling is to recommence where a temporary cessation for a period in excess of three months has been necessary.

G DEPOSITS OF WASTE ON THE SITE

G1 Site Preparation and Engineering Works

All site preparation and engineering works specified in the Working Plan shall be carried out in accordance with the requirements of Conditions J1 and J7 inclusive.

No waste will be deposited in any phase of the site until:-

(a) Site Preparation and Engineering Works

The site preparation and engineering works specified in the Working Plan for the phase into which waste is intended to be deposited have been carried out in accordance with the requirements of Conditions J1 to J7, and these works have been inspected and any required validation report has been accepted in writing by the Waste Regulation Authority; and

(b) Acceptance of Results

All results required in accordance with Condition J2(a) in respect of site preparation and engineering works have been submitted in writing to, and accepted in writing by, the Waste Regulation Authority.

G2 Filling of Cells

(a) Phasing of Cells

The site shall be filled in phases in the order shown in the Working Plan.

(b) Completion of Cells

Any phase which has been filled to final height shall be capped with a temporary cap to limit rainfall ingress within three months of the final deposit of waste in that phase, or in the case of adverse weather Conditions within a longer period as agreed in writing with the Waste Regulation Authority. The temporary cap shall be as specified in the Working Plan. The final cap shall be in accordance with the Working Plan and the requirements of Conditions J1 and J7.

G3 Waste and Other Materials Awaiting Deposit

(a) Cover Material

Cover material awaiting deposit shall be stored within the licensed area as shown hatched black on the attached plan number LA198/P1.

The maximum height of such stored waste shall be 2.0 (two) metres. Such cover material shall only include materials in Class A as defined in Appendix 2.

(b) Hardcore for Site Roads

Hardcore material intended for use in constructing site roads shall be stored within the area shown hatched black on the attached plan number LA198/P1 and shall, if contaminated, only consist material within contamination class A as defined by Appendix 2. The maximum height of such hardcore storage shall be 2.0 (two) metres.

(c) Leachate and Contaminated Waters

Leachate and contaminated waters which have been removed from the site shall either be:

(i) discharged to the foul sewer; or

(ii) stored and treated on site in designated tanks or lagoons engineered to a standard to be agreed in writing with the National River's Authority (Welsh Region) and the Waste Regulation Authority prior to its discharge to foul sewer. Any such proposed method of treatment once so agreed shall be specified by the licence holder in a modified Working Plan which shall be submitted to the Waste Regulation Authority to be incorporated into this licence in accordance with Condition A5; or

(iii) recirculated within the landfilled areas of the site.

G4 Compaction into Layers

Wastes deposited for the purposes of landfilling shall be stored only along the top of the working face in an area not exceeding 20.0 (twenty) metres in length extending no more than 10.0 (ten) metres from the top of the working face and to a maximum height of 2.0 (two) metres. Such stored waste shall be compacted and formed into a layer not later than the end of the working day.

G5 Depth of Compacted Layers

The depth of a layer of waste shall not after initial compaction exceed 2.0 (two) metres.

G6 Formation of a Layer of Waste

The layer of waste shall be formed in one or other of the wastes described in Condition G7 using suitable compaction equipment with a blade or some other appropriate levelling device.

G7 **Methods of Deposit and Compaction**

(a) Solid Wastes

Except where being stored in accordance with Condition G3, wastes shall only be deposited either:

(i) On the surface of the site behind the working face, where they shall be partially compacted by a tractor or other compacting machine before being pushed over the working face; or

(b) Sludge Wastes

Sludge wastes, where permitted, shall only be deposited into designated areas where drying out can occur before compacting. The maximum permitted drying out time is 2 months from the date of deposit.

G8 **Deposit of Large Articles**

All large articles 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 1.0 (one) metre of the surface or 2.0 (two) metres of the flanks of the face.

G9 **Gradients of Working Faces and Flanks**

Working faces shall be compacted to gradients not greater than 1 in 3. The other edges of the site shall be compacted to gradients as specified in the Working Plan.

G10 **Intermediate Cover**

Material used for landfill in the site other than that which consists solely of non-putrescible uncontaminated waste types shall, subject to the traction needs of vehicles operating at the working face, be covered progressively with suitable cover material throughout the working period each day, so that by the end of the day all exposed surfaces including the flanks and face have been covered to a depth of not less than 0.15 metres (approximately 6 inches). Such cover material shall comply with the requirements of Condition B1(c).

G11 **Temporary Capping of Cells**

A temporary cap comprising of sub-soil and/or clay shall be laid on top of the cells which have been partially filled but in which landfilling is not to be recommenced for a period of greater than two months. The depth of any such cap shall be no less than 0.15 metres (approximately 6 inches).

G12 **Final Layer**

The final layer deposited on the site shall be subject to the minimum compaction and shall, to a depth of not less than 1 (one) metre, be kept free of materials likely to interfere with final restoration or subsequent cultivation.

H ENVIRONMENTAL CONTROLS

H1 Fires

No waste shall be burnt within the boundaries of the site, other than the burning of landfill gas by means of a dedicated burner.

The specification of any such burner provided by the licence holder shall be submitted to the Waste Regulation Authority for acceptance and incorporation into the Working Plan prior to its installation.

Any fire at the site other than such burning of landfill gas shall be regarded as an emergency and immediate action shall be taken to extinguish it. All such outbreaks of fire shall be notified forthwith by facsimile transmission or telephone to the Waste Regulation Authority in accordance with Condition A8.

H2 Loose Waste

At least once a week any loose waste which may be lying on the site shall be gathered and disposed of in the site.

H3 Control of Windblown Litter

All reasonable precautions shall be taken in accordance with the Working Plan to ensure that waste which becomes windblown is retained within the curtilage of the site. If any such waste escapes from the site, it shall be collected immediately and disposed of in the site.

Details of any such requirement to collect waste which has escaped from the site shall be recorded in the site diary and shall include the type of waste collected, the quantity of waste collected and the area from which it was collected.

H4 Control of Weeds

Until final restoration, completed areas of landfilling shall be graded and maintained in a tidy condition and where necessary action shall be taken to control or destroy weeds.

H5 Bird Control

Precautions shall be taken deal effectively with the dispersion of the birds which flock on the site. Such precautions shall include an appropriate method of bird scaring. Details of any such precaution to be used shall be notified in writing to the Waste Regulation Authority prior to its use for incorporation into the Working Plan in accordance with Condition A5.

H6 **Vermin and Insects**

Precautions shall be taken to deal effectively with any vermin and insects on the site.

H7 **Amenities and Footpaths**

(a) Amenities

Measures shall be undertaken so as to prevent detriment through noise, vibration, dust, smoke, smell or visual impact to the amenities of the adjoining locality.

(b) Footpaths

No operations shall be undertaken on the site until a system to control the right of way to either persons using Footpath Number 23 or vehicles using the site access road where the site access road crosses the footpath has been installed.

Details of any such system of control installed shall be submitted to the Waste Regulation Authority in writing, after the proposals have been forwarded to Clwyd County Highways Department for comment, prior to its installation and incorporation into the Working Plan.

H8 **Suppression of Dust**

Whenever necessary the site surface, incoming loads and waste awaiting deposit shall be sprayed with water to suppress the emission of dust and in any event shall be sprayed if requested by officers of the Waste Regulation Authority.

H9 **Netting/Sheeting of Loads**

The licence holder shall ensure that all loads of waste transported in open topped vehicles to and from the site are adequately netted or sheeted.

H10 **Emergency Plans**

An emergency plan giving details of the emergency operational procedures to be followed in the event of fire, landfill gas and/or other leakages and any other such emergencies shall be provided to the Waste Regulation Authority in writing within 3 months of issue of this licence.

In addition to the operational procedures contained in the emergency plan for an occasion when landfill gas concentrations exceed the relevant threshold levels

specified in Waste Management Paper No. 27 (for methane this is 1% by volume and for carbon dioxide this is 1.5% by volume), the emergency plan shall also include the specification for remedial action to be taken to vent the site. Any such venting details shall include proposals for the construction of a cut off ditch installed between the site boundary and virgin ground and/or details of the type of gas extraction system to be installed.

The Local Environmental Health Department, Health and Safety Executive, British Gas, the National Rivers Authority, the Emergency Services, Clwyd County Council and the Waste Regulation Authority shall be consulted where necessary when drawing up these procedures.

No waste shall be deposited 3 months from the date of issue of this licence unless such an emergency plan has been accepted in writing by the Waste Regulation Authority in accordance with Condition A5 and incorporated into the Working Plan.

I POLLUTION CONTROLS

For the purposes of this licence, references to the specific sampling of groundwater, surface water, leachate and/or landfill gases required to be taken on the same day under the provisions of Conditions I3, I4, I5 and I6 below shall each be referred to as a "suite of sampling".

I1 Drainage Onto or From Land

(a) Surface Water Run-Off

All surface water run off from the site shall be collected in the site surface water drainage system specified in the Working Plan.

(b) Surface Water in Unused Areas of the Site

Any water collecting in an unused area shall be removed before any waste is tipped in that phase. Any such water shall be considered to be contaminated, unless the area of the site being landfilled has been engineered to be hydraulically independant of the unused phase of the site, and shall be disposed in accordance Condition G3.

Any water which has collected in an unused area of the site which has been engineered to be hydraulically independant of the area of the site which has been landfilled shall be removed from the unused area prior to the commencement of any engineering works required by Condition J1 of this licence.

I2 Discharge to Drains, Sewers and Watercourses

No waste, or water contaminated with waste shall be discharged or allowed to enter any drain, sewer or watercourse other than in accordance with a consent issued by the National Rivers Authority (Welsh Region) in the case of watercourses or Welsh Water Plc in the case of drains or sewers. A copy of any such consent shall be provided to the Waste Regulation Authority prior to any such discharge being carried out.

I3 Monitoring of Surface Water Arisings

(a) Surface Water Monitoring Programme

A minimum of four samples of surface water shall be taken from the surface water drainage system on one day at a minimum frequency of one suite of sampling taken biannually. Each sample shall be subjected to its conductivity being measured and an analysis for the parameters as specified in Appendix 5 to this licence undertaken.

The location of these sampling points shall be notified in writing to the Waste Regulation Authority to be incorporated into the Working Plan in accordance with Condition A5.

(b) Recording of Surface Water Monitoring Results

All results of conductivity measurements and analyses of samples of surface water carried out in accordance with Condition I3 (a) above shall be recorded in accordance with Conditions D1.

(c) Retention of Records

All records made in accordance with the requirements of Condition I3 (b) above shall be kept in accordance with the Condition D2.

(d) Submission of Copies of Monitoring Results to the Waste Regulation Authority

A copy of the records made in accordance with the requirements of Condition I3 (b) above shall be submitted in writing to the Waste Regulation Authority within one month of the within 2 (two) calendar months of date upon which each suite of sampling has been taken.

I4 **Monitoring of Groundwater**

(a) Groundwater Monitoring Programme

Groundwater shall be monitored in accordance with the programmes specified in (i), (ii) and (iii) below.

(i) General Monitoring Requirements

The height and flow of the groundwater at each of the groundwater monitoring points shall be measured on one day at a minimum frequency of once every month for the duration of this licence.

(ii) Initial Monitoring Programme

A minimum of one sample of groundwater from each of the groundwater monitoring points constructed in accordance with the Working Plan and installed at locations as detailed in plan 92313/2/13 of the Working Plan shall be taken on one day at a minimum frequency of one suite of sampling taken every three months. Each sample shall be subjected to its conductivity being measured and an analysis for the parameters as specified in Appendix 5 to this licence undertaken.

After a period of two years of such groundwater monitoring, the frequency of sampling and analysis shall be reduced to the frequency specified in (iii) below.

(iii) Continued Monitoring of Groundwater

A minimum of one sample of groundwater from each of the groundwater monitoring points installed at locations as detailed in plan 92313/2/13 of the Working Plan shall be taken on one day at a minimum frequency of one suite of sampling taken every six months. Each sample shall be subjected to its conductivity being measured and an analysis for the parameters as specified in Appendix 5 to this licence undertaken.

(b) Recording of Groundwater Monitoring Results

All results of groundwater levels, groundwater flow rates, conductivity measureport
shall take account of the following:

(i) the location of buildings within 250 metres of the site boundary;

(ii) the location of services within 250 metres of the site boundary; and

(iii) geological pathways which could be pathways for landfill gas migrating from the site.

Where applicable the risk assessment report shall include cross references with the proposals submitted in the form on an emergency plan required by Condition H10 of this licence detailing any methods which may be used in an investigation to find landfill gas and/or leachate migration from the site.

(b) Monitoring of Landfill Gas

Landfill gas monitoring boreholes constructed in accordance with the Working Plan and installed at locations as detailed in plan 92313/2/13 of the Working Plan shall each be monitored for the following parameters on one day at a minimum frequency of once every week from date of issue of this licence starting at least six (6) weeks prior to the commencement of landfilling:-

Gas content as

(i) Flammable gas as a percentage of the lower explosive limit
(ii) Flammable gas as a percentage of volume/volume in air
(iii) Oxygen gas as a percentage of volume/volume in air
(iv) Carbon dioxide gas as a percentage of volume/volume in air.

Additionally, any gas vents constructed in accordance with the Working Plan and installed at locations as detailed in plan 92313/2/13 of the Working Plan shall each be monitored for the above mentioned gases on one day at a minimum frequency of once per week for the duration of this licence.

A record shall also be made on the day upon which the monitoring has been carried out of:

(i) the date upon which each suite of monitoring has been carried out;
(ii) the barometric pressure;
(iii) the gas pressure in each of the boreholes provided in accordance with the Working Plan and the requirements of this licence; and/or as the case may be
(iv) the gas vents

provided in accordance with the Working Plan and the requirements of this licence

(c) Record Keeping

Records shall be kept of all of the details and results of monitoring required by (b) above and a copy submitted in writing to the Waste Regulation Authority within one week of the date upon which the monitoring was carried out.

These records shall be kept in accordance with Condition D2.

(d) Remedial Works

Should the results obtained by carrying out the monitoring required by (b) above give levels greater than the threshold levels specified in Waste Management Paper No. 27 (for methane this is 1% volume by volume in air and for carbon dioxide this is 1.5% volume by volume in air) in monitoring points which are not situated within the waste mass, then

(i) remedial action shall be taken in accordance with details in the emergency plan required by Condition H10 and where applicable, the risk assessment report required by Condition I6 (a) above to determine the extent and location of the leakage and

(ii) the frequency of monitoring for gases as specified in (b) above shall be increased to once daily for a minimum continuous period of two weeks to establish that the level of gas emissions has fallen below the relevant threshold levels and that these gas levels have been maintained below the relevant threshold levels continuously for a period of at least two consecutive weeks.

If after the two week monitoring period mentioned above, the gas levels have been maintained above the relevant threshold levels then remedial measures shall be installed to vent the site in accordance with the emergency plan required by Condition H10.

The frequency of monitoring for gases as specified in (b) above shall be maintained at once daily throughout the installation of the remedial works and for a minimum continuous period of two weeks after the completion of the installation to establish that the level of gas emissions has falled below the relevant threshold levels and that these gas levels have been maintained below the relevant threshold levels consistently for a minimum period of two consequtive weeks.

J SITE PREPARATION, MAINTENANCE AND RESTORATION

J1 Engineering Works Quality Control

(a) No waste shall be deposited until:

All engineering works specified in Conditions J2 to J8 have been constructed, provided and/or installed in accordance with the appropriate method statement included in the Working Plan. Each such method statement shall include:

(i) the specification of materials and equipment to be used in the construction, emplacement and/or installation;

(ii) the engineering details of construction, emplacement and/or installation;

(iii) the quality control measures applied to ensure that the requirements of Condition J2 are achieved.

(b) A suitably qualified and experienced independent engineering geologist, geotechnical, civil or mechanical engineer as appropriate shall supervise the construction, emplacement or installation of all engineering works specified in Conditions J2 to J8, and shall certify in the form of a validation report that any such construction, emplacement or installation has been carried out in accordance with the appropriate method statement required by (a) above.

(c) The method statement specified in (a) shall be submitted to and accepted in writing by the Waste Regulation Authority prior to any validation report being submitted in accordance with (b) above.

(d) No waste shall be deposited in any phase until the appropriate engineering works required by Conditions J2 to J8 (inclusive) as specified for the preparation of that phase in the Working Plan, have been provided, tested and the results of any such testing accepted in accordance with (a) to (c) (inclusive) above.

J2 Earthworks, Clay Liners and Bunds

(a) The construction of clay liners, clay bunds and a clay cap detailed in (b) below shall be carried out in accordance with the requirements of Condition J1 (above) and the specification contained within the National River's Authority (North West Region) document entitled "Earthworks on Landfill" (1989 Revision), details of which are given in Appendix 6 attached to this licence.

Records of tests required to be carried out by the National River's Authority (North West Region) document entitled "Earthworks on Landfill" (1989 Revision) on lining material prior to the emplacement and after emplacement of the lining material shall be made and shall be forwarded to the Waste Regulation Authority within fourteen (14) days of the results being received by the licence holder.

(b) The base of the each phase of the site shall be progressively lined with a minimum thickness of one (1) metre of clay such that the base of a whole phase is lined prior to the deposit of any waste within that particular phase.

Additionally, the sides of the site shall be progressively lined with a minimum thickness of one (1) metre of clay such that where applicable, either:-

(i) The sides of a whole phase are completely lined prior to the deposit of waste within that phase being lined; or

(ii) The height of the lining of the sides of the phase is maintained at a minimum height of two (2) metres above the height of the waste being deposited, where the operation of progressive lining and subsequent landfill is being carried out, unless the lining on the sides of the phase, into which waste is being deposited, is completed.

The clay lining emplaced on the slopes of the sides of the site shall be laid at an angle of not greater than sixty degrees (60^{o}) to the horizontal to ensure that the clay lining is free from slippage or creep. The stability of such lining shall be monitored monthly with respect to slippage until the height of the waste deposited adjacent to the slope is equivalent to the height of the lined area. Any such monitoring shall be carried out using an appropriate method, details of which shall be submitted to the Waste Regulation Authority in writing, prior to the installation of any clay lining, for acceptance and incoporation into the Working Plan.

(c) The maximum depth of excavation at any point in the site shall not exceed that specified in the Working Plan and in any case shall be maintained at least one (1) metre above the level of groundwater at all times.

J3 **Surface Water Drainage and Monitoring Systems**

The surface water drainage, collection and discharge systems shall be provided in accordance with the Working Plan. Any such systems shall be monitored in accordance with Condition I3.

J4 **Groundwater Monitoring Systems**

Groundwater monitoring boreholes shall be provided as specified in the Working Plan and shall be monitored in accordance with Condition I4.

J5 **Leachate Management Systems**

The following leachate management systems shall be provided as specified in the Working Plan any leachate produced shall be monitored in accordance with Condition I5:-

(a) leachate drainage system, with provision for access for monitoring, long-term cleaning and maintenance;

(b) a minimum of three leachate chimneys;

(c) a minimum of four leachate level monitoring pipes;

(d) leachate pumping and ejection systems;

(e) leachate treatment system provided in accordance with Condition G3(c)(ii).

J6 **Landfill Gas Monitoring and Control**

The following landfill gas monitoring and control systems shall be provided as specified in the Working Plan and in accordance with Conditions G1 and I6:

(a) internal and external landfill gas monitoring points;

(b) landfill gas passive vents.

J7 **Capping**

On completion of filling-in each phase, the complete phase shall be capped with a layer of clay 1.0 metre thick or alternative as specified in the Working Plan and in accordance with Conditions G2 and J1.

J8 **Restoration**

On completion of the cap in accordance with Condition J7, the site shall be restored as specified in the Working Plan and in accordance with Planning Permission Number 4/0/20705.

J9 **Excavated Clay**

Excavated clay shall only be stockpiled in a designated area as specified in the Working Plan.

J10 **Topsoil, Silt and Vegetation**

All existing topsoil, silt, vegetation and other organic material shall be removed from the area to be landfilled prior to engineering works or landfill operations being commenced. Such materials shall be either stored for use in site restoration or removed to a suitably licenced site as specified in the Working Plan.

J11 **Maintenance**

(a) All engineering works specified in Conditions J2 to J7, and provided in accordance with Condition J1, shall be periodically tested and maintained in accordance with the maintenance schedule in the Working Plan.

(b) A record shall be kept of all such periodic tests and maintenance procedures carried out. The record shall include details of any defects or failures detected, and the actions taken to remedy each such defect or failure.

(c) Any defect or failure detected in such a system shall be notified in writing forthwith to the Waste Regulation Authority, in accordance with Condition A8. Each notification shall include the action taken or proposed to remedy the defect or failure.

Appendix 1

PERMITTED WASTE TYPES

No liquid wastes are permitted to be deposited in the site.

The total quantity of waste permitted to be deposited in the site consisting of the waste types listed below, in Table 1, shall not exceed the maximum permitted quantity as specified in Condition B1 per working day.

Table 1

WASTE TYPE	COMMENTS
Inert Waste	Consisting of top soil, sub-soil, clay, sand, silica, hardocre/rubble, stone, carbon, glass, pottery, fired china, fired enamel, fired ceramics, mica, brickwork and concrete within the permitted ranges of Class A contamination as detailed in Appendix 2 attached to this licence
Commercial Waste	As defined by the Collection and Disposal of Waste Regulations 1988
Construction Wastes	"Construction" as defined in the Collection and Disposal of Waste Regulations 1988
Other Industrial Wastes	As defined by the Collection and Disposal of Waste Regulations 1988

The total quantity of waste permitted to be deposited in the site consisting of the waste types listed below, in Table 2 shall not exceed the quantities specified in the table, which are specified in terms of the maximum permitted tonnage allowed per working day or the maximum permitted volume of waste to be deposited in terms of cubic metres per working day, whichever amount is the lesser quantity.

Table 2

WASTE TYPES	MAXIMUM PERMITTED
Contaminated Earths and Construction Materials upto Class E contamination as defined in Appendix 2 attached to this licence, but not including "special Wastes" as defined by the Control of Pollution (Special Waste) Regulations 1980.	1000
Filter Cakes/Effluent Treatment Sludges	50 (solids) 50 (sludges)

SOIL CLASSES A TO E - LIMITS OF RANGES FOR CONTAMINATION LEVELS

RANGES OF PERMITTED CONTAMINATION (mg/kg on air dried soild, except for pH)

Symbol	PARAMETER/CONTAINMENT Name	SOIL CLASS A Max	SOIL CLASS B Max	SOIL CLASS C Max	SOIL CLASS D Max	SOIL CLASS E Min
	pH (acid)	7	6	5	4	2
	PH (alkali)	8	9	10	12	12
Sb	Antimony	30	50	100	500	500
As	Arsenic	30	50	100	500	500
Cd	Cadmium	1	3	10	50	50
Cr	Chromium	100	200	500	2,500	2,500
Cu	Copper (available)	100	200	500	2,500	2,500
Pb	Lead (total)	500	1,000	2,000	10,000	10,000
	Lead (available)	200	500	1,000	5,000	5,000
Hg	Mercury	1	3	10	50	50
Ni	Nickel (available)	20	50	200	1,000	1,000
Zn	Zinc (available)	250	500	1,000	5,000	5,000
	Zinc equivalent	250	500	2,000	10,000	10,000
B	Boron (available)	2	5	50	250	250
Se	Selenium	1	3	10	50	50
Ba	Barium	500	1,000	2,000	10,000	10,000
Be	Beryllium	5	10	20	50	50
Mn	Manganese	500	1,000	2,000	10,000	10,000
V	Vanadium	100	200	500	2,500	2,500
Mg	Magnesium	500	1,000	2,000	10,000	10,000
SO	Sulphate	2,000	5,000	10,000	50,000	50,000
S	Sulphur (free)	100	500	1,000	5,000	5,000
	Sulphide	10	20	100	500	500
CN	Cyanide (free)	1	5	50	100	100
	Cyanide (total)	5	25	250	500	500
	Ferricyanide	100	500	1,000	5,000	5,000
	Thiocyanate	10	50	100	500	500
	Coal Tar	500	1,000	2,000	10,000	10,000
	Phenols	1	5	50	250	250
	Toluene extract	5,000	10,000	50,000	250,000	250,000
	Cyclohexane extract	2,000	5,000	20,000	100,000	100,000
	PCB	1	3	10	50	50
	Polyaromatic hydrocarbons	50	500	1,000	5,000	5,000
	Chlorinated solvents	1	3	10	50	50

Soil Classes A to E - Limits of Ranges for Contamination Levels

Notes:

(1) Soil Class A: Uncontaminated soil
Soil Class B: Slightly contaminated soil
Soil Class C: Contaminated soil
Soil Class D: Heavily contaminated soil
Soil Class E: Unusually heavily contaminated soil

(2) In the event of a measured contamination level falling exactly on the boundary of two soil classes, the upper (more heavily contaminated) soil class should be assumed.

(3) Only soil Class A can be disposed of at an inert landfill site. Soil Classes B, C, D and E, must be disposed of at a suitably licensed landfill site.

(4) In the cases of Soil Class D (heavily contaminated soil) and Soil Class E (usually heavily contaminated soil) an analysis must be carried out to determine whether the soil is a Special Waste and, if so, the disposal carried out in accordance with the requirements of the "Control of Pollution (Special Waste) Regulations 1980".

(5) Unless specifically stated otherwise, contamination levels are for total concentration of contaminant, extractable by $HCLO_3/HCLO_4$ (ICRCL Guidance Note 59/83 Second Edition).

(6) Available concentration of contaminant determined by standard ADAS method (soluble in hot water) (ICRCL Guidance Note 59/83, Second Edition).

(7) Zinc equivalent: Combination of copper, nickel and zinc.

(8) For contaminants not listed it must be assumed that the soil is not permitted (unless specifically permitted under Condition B1).

ANALYSIS OF SAMPLES OF WASTE

1. TEST AND METHODS OF ANALYSIS

Unless otherwise specifically agreed in writing with the Waste Regulation authority and specified in detail in the Working Plan, the following tests and methods of analysis shall be used in any analyses of wastes carried out in accordance with the requirements of this licence.

PARAMETER	FULL ANALYSIS	SOIL ANALYSIS	REFERENCE METHOD
pH	Standard Reference Electrode adjusted to 25°C	Standard Reference Electrode adjusted to 25°C	
ACID/ALKALI STRENGTH	Titrimetric Analysis		
FLAMMABILITY			
FLASHPOINT	Closed cup method (Seta-Flash)		
SPECIFIC GRAVITY	Hydrometer at 15.5°C		
REACTIVITY/ COMPATIBILITY WITH: (a) ACIDS (b) ALKALIS (c) WATER (d) OTHER SUBSTANCES RELEVANT TO WASTE TYPE	Test exothermic reaction leading to temperature rise (°C) Test release of noxious gases using Draeger tubes.		
APPEARANCE/ ODOUR	Observe: (a) No of phases (liquids) (b) Homogeneity (solids) (c) Presence of (i) Toxic vapours (ii) Noxious vapours/odour (iii) Slight odours		
COMPONENTS- HEAVY METALS ETC	Atomic Absorption Spectrophotometer (AAS) or Mass Spectrophotometer (MS) or Gas Liquid Chromatography (GLC)	As per Appendix 2	

2. LEACHATE TEST FOR ANALYSIS OF SOLID WASTES

Where the waste being treated is in solid form and the relevant test is required to be carried out on a liquid, the method to be used will be the proposed "ASTM Leaching of Waste Materials Test" as specified in the National Sanitation Foundation Report on Leachate Testing Hazardous Chemicals from Stabilised Automotive Wastes (January 1979), subject to the following modifications.

2.1 Method

A distilled water-shake extraction procedure shall be used.

2.2 Procedure

2 2.1 Shake Procedure

(a) A sample of 500g of waste material which shall be representative of the whole contents of the load shall be taken. The sample shall be ground, coned and quartered to obtain a representative sample of 150g of material passing a 1mm sieve. Any material not passing the specified above sieve shall be retained and may be separately examined.

(b) Use approximately 100g of the ground material, and determine and record the weight of the sample used to an accuracy of + 1g.

(c) Add a volume of test water equal in millilitres to four times the weight in grams of the sample used in (b).

2.3 Analyses

2.3.1 The aqueous filtrate shall be analysed for specified parameters using the specified analtical methods as defined in the above table (or such recognised similar tests equivalent results as may have been previously agreed in writing with the Waste Regulation Authority and specified in the Working Plan).

2.3.2 Where non-aqueous liquid is present it shall be separately analysed as specified in 1.3.1.

2.4 Calculation of Results

2.4.1 All results shall be reported in terms of milligrans per litre of filtrate.

Appendix 4

SCHEDULE OF SITE RECORDS

SUBJECT OF RECORD	TYPE OF RECORD	DETAILS TO BE INCLUDED	PARAMETERS	SUBMISSION TO WRA	
				FREQUENCY	DEADLINE
Waste Inputs		Type of Waste	As Defined by Duty of Care	Upon Request	Upon Request
		Quantity	In Tonnes		
		Person/Company			
		Source			
		Time and Date			
		Registration Mark			
		Driver's Name			
	Monthly Summary	Types of Waste		Monthly	Within two weeks of the end of the next month
		Total Quantity/ Type of Waste per District of Origin	In Tonnes		
Waste Outputs		Type of Waste	As Defined by Duty of Care	Upon Request	Upon Request
		Quantity	In Tonnes		
		Person/Company			
		Source			
		Time and Date			
		Registration Mark			
		Driver's Name			
	Monthly Summary	Types of Waste		Monthly	Within two weeks of the end of the next month
		Total Quantity/ Type of Waste per District of Origin	In Tonnes		

Appendix 5

ANALYSIS OF SAMPLES OF SURFACE WATER

NOTE:

The permitted methods for analysis of the following parameters are in accordance with the relevant methods as detailed in appropriate "Blue" Books.

Table 1 The frequencies specified below are for the duration of this licence.

PARAMETER	UNITS	FREQUENCY OF SAMPLING AND ANALYSIS PER SAMPLING POINT
Conductivity	uS/cm	Biannually
pH Value	-----	Biannually
COD (Chemical Oxygen Demand)	mg/l	Biannually
BOD (Biological Oxygen Demand	mg/l	Biannually
Ammoniacal Nitrogen	mg/l	Biannually
Nitrite Nitrogen	mg/l	Biannually
Nitrate Nitrogen	mg/l	Biannually

ANALYSIS OF SAMPLES OF GROUNDWATER

Table 2A The frequencies specified below are for the 1st two years of the operation of this licence only.

PARAMETER	UNITS	FREQUENCY OF SAMPLING AND ANALYSIS PER SAMPLING POINT
Conductivity	uS/cm	Quarterly
pH Value	-----	Quarterly
COD (Chemical Oxygen Demand)	mg/l	Quarterly
Ammoniacal Nitrogen	mg/l	Quarterly
Chloride	mg/l	Quarterly
Sulphate	mg/l	Quarterly
Potassium	mg/l	Quarterly
Chromium	mg/l	Quarterly
Iron	mg/l	Quarterly
Nickel	mg/l	Quarterly
Copper	mg/l	Quarterly
Zinc	mg/l	Quarterly
Lead	mg/l	Quarterly
Cadmium	mg/l	Quarterly

ANALYSIS OF SAMPLES OF GROUNDWATER

Table 2B The frequencies specified below to be adhered to after the completion of the 1st two years of the implementation of this licence and for the duration of this licence thereafter.

PARAMETER	UNITS	FREQUENCY OF SAMPLING AND ANALYSIS PER SAMPLING POINT
Conductivity	uS/cm	Biannually
pH Value	-----	Biannually
COD (Chemical Oxygen Demand)	mg/l	Biannually
Ammoniacal Nitrogen	mg/l	Biannually
Chloride	mg/l	Biannually
Sulphate	mg/l	Biannually
Potassium	mg/l	Biannually
Chromium	mg/l	Biannually
Iron	mg/l	Biannually
Nickel	mg/l	Biannually
Copper	mg/l	Biannually
Zinc	mg/l	Biannually
Lead	mg/l	Biannually
Cadmium	mg/l	Biannually

Additionally, once List I and/or List II substances as specified in EEC Groundwater Directive 80/68 have been detected in the leachate, the substances within the List I and List II categories found shall be analysed for in the groundwater on an annual basis. The results of any such additional analysis shall be submitted to the Waste Regulation Authority in accordacne with Condition A8 within one month of the groundwater samples having been taken.

ANALYSIS OF SAMPLES OF LEACHATE

PARAMETER	UNITS	FREQUENCY OF SAMPLING AND ANALYSIS PER SAMPLING POINT
Conductivity	uS/cm	Monthly
pH Value	-----	Monthly
COD (Chemical Oxygen Demand)	mg/l	Monthly
BOD (Biological Oxygen Demand	mg/l	Monthly
Ammoniacal Nitrogen	mg/l	Monthly
Nitrite Nitrogen	mg/l	Monthly
Nitrate Nitrogen	mg/l	Monthly

Additionally, leachate shall be analysed for List I and List II substances as specified in the EEC Groundwater Directive 80/68 on an annual basis. The results of such analyses shall be submitted in writing to the Waste Regulation Authority in accordacne with condition A8 within one month of the leachate samples having been taken.

Earthworks Specification

(a) Representative samples of material from each source to be used in any liner, final cap or leachate retaining element of a specified bund (hereafter referred to as the seal) shall be tested by an approved soils laboratory to show it is capable of being compacted (by the equipment to be used for its emplacement) to an extent that will achieve a permeability of 1 x 10^{-9}m/sec or less also that the material has a clay content (paticle size less than 0.002mm) exceeding 10%, the liquid limit does not exceed 90 and the plasticity index does not exceed 65.

(b) The number of samples and their location shall be agreed in writing with the Waste Regulation Authority before the commencement of the programme of tests and the following shall be determined on each sample taken:

(i) the natural moisture content;
(ii) the liquid and plastic limits;
(iii) the particle size distribution;
(iv) the density, moisture content, compaction relationship;
(v) the relationship between permeability, moisture content and degree of compaction on the recompacted samples;
(vi) the specific gravity of the solid fraction.

(c) Where in-situ material is to be used to form part or the whole of a seal it shall be tested by an approved soils laboratory at locations to be agreed with the Waste Regulation Authority in writing to establish that it has a permeability of 1 x 10^{-9}m/sec or less. The thickness of the in-situ material shall be measured to establish:

(i) if sufficient material is present to meet the requirement of (f) below; or
(ii) the additional thickness of material required.

(d) All tests shall be carried out as set out in the National Rivers Authority (North West Region) specification for Earthworks on Landfill Sites, Sections S1.1, 1.2, 1.3 and 1.5.

(e) A report setting out the results of all tests shall be submitted to the Waste Regulation Authority. Where material is to be emplaced to form a seal, the report shall detail the minimum moisture content to be achieved during its emplacement, the equipment to be used for its emplacement, the maximum thickness of each layer, and the minimum number passes per layer which shall not be greater than those recommended for the compaction equipment to be used as set out in the table of compaction requirements contained in the National Rivers Authority (North West Region) Specification for Earthworks on Landfill Sites respectively.

If alternative equipment is to be used on-site trials shall be carried out to determine a procedure that will ensure the desired permeability is achieved and the use of the procedure shall be agreed by the Waste Regulation Authority.

(f) The minimum thickness of emplacement and/or in-situ material meeting the requirements of (a) above in any seal shall be 1.0 metre or greater thickness as specified by the Waste Regulation Authority. The thickness shall be measured normal to th surface of the seal at the point of test.

The number of such tests which shall be carried out before the emplacement of any supporting material, shall be agreed with the Waste Regulation Authority. Such tests shall either be supervised by the Waste Regulation Authority or be carried out by a suitably qualified engineer approved by the Waste Regulation Authority.

(g) The material shall be emplaced in accordance with the procedure and at a moisture content not less than that specified in the report required by (e) above.

(h) Any material other than that approved in accordance with (a) above shall be excluded from the seal and any material incorporated shall be free from vegetable or combustible matter, shall not contain any objects with a maximum dimension in excess of 200mm and shall not be frozen.

Material shall not be emplaced if it has a moisture content which renders it unworkable using the method and equipment specified in accordance (e) above.

(j) The crest width of any structure incorporating a seal shall not be less than 2 metres and shall be designated and constructed to provide a batter(s) which remain stable during the life of the structure. The design of each structure (which may incorporate the use of inert non-combustible material other than that approved in accordance with (a) to support the seal) shall be submitted along with the report required by (e) and shall be approved by the Waste Regulation Authority before the commencement of its formation.

(k) Where existing material is to form part of a seal or is to abut onto a seal all soil and other pervious material shall be removed to the satisfaction of the Waste Regulation Authority before the commencement of emplacement of the seal.

(l) The seal shall be free of fissures, cracks, or slip planes and an inspection shall be carried out in the presence of a representative of the Waste Regulation Authority to identify any areas where such discontinuities exist before any supporting material is emplaced.

(m) The emplaced material shall be sampled at depths and locations to be agreed with the Waste Regulation Authority and the following shall be determined on each sample by methods required by (d) above:

(i) in-situ density;
(ii) moisture content;
(iii) liquid and plastic limits;
(iv) particle size distribution.

(n) A report setting out the results of the testing shall be submitted to the Waste Regulation Authority for approval of the seal/structure.

If the tests identify areas where the material differs significantly in terms of its liquid limit, plasticity index, or particle size distribution from those established in accordance with (b) or if the calculated percentage of air voids exceeds 5% or the percentage achieved in the laboratory compaction tests, whichever is the greater; undisturbed samples shall be taken and their permeability measured by the falling head method. In the event of these permeabilities being greater than 1×10^{-9} m/sec or if there are any discontinuities apparent on the surface of the seal, then suspect area shall be excavated and reformed so that it meets the required satisfaction.

(o) Completed seals shall be protected to prevent drying out and the formation of cracks in the emplaced material.