ENVIRONMENT AGENCY

Variation Notice with introductory note

Pollution Prevention and Control Regulations 2000

Castle Cement Ltd
Padeswood Works
Padeswood
Mold
Flintshire
CH7 4HB

Variation Notice number

YP 3438

Permit number

BL 1096

Introductory note

This introductory note does not form a part of the Variation Notice.

The following Notice is issued under Regulation 17 of The Pollution Prevention and Control (England and Wales) Regulations 2000 (S.I.2000 No. 1973 (as amended) (the Regulations) to vary the conditions of a Permit issued under the Regulations to operate an installation.

The Notice comprises Schedule A containing conditions to be deleted, Schedule B conditions to be amended and Schedule C conditions to be added. The Notice is subject to the express conditions set out in Schedules A to C.

The Permit, as amended by this Variation Notice, contains conditions which have to be complied with. There may be some activities on the installation to which BAT applies because they are not Landfill activities. Therefore, in some sections of the Permit conditions require the Operator to use Best Available Techniques (BAT), in each of the aspects of the management of the installation, to prevent and where that is not practicable to reduce emissions. The conditions do not explain what is BAT. In determining BAT, the Operator should pay particular attention to the appropriate Horizontal guidance and other relevant guidance.

Brief description of the changes introduced by this variation notice.

The main purpose of the activity/ies at the installation is:-

The manufacture of cement, the permit has been varied to permit the disposal of waste cement kiln dust produced on site in a landfill and associated leachate management.

Other PPC Permits relating to this installation		
Permit holder	Permit Number	Date of Issue
None		

Superseded Licenses/Consents/Authorisations relating to this installation		
Holder	Reference Number	Date of Issue
Castle Cement Ltd – IPC Authorisation	A10349	30/09/93

Talking to us

If you contact the Agency about this Permit please quote the Permit Number.

The Operator should use the Emergency Hotline telephone number (0800 80 70 60) or any other number notified to it to give a notification under condition 4.3.1 of the Permit.

Confidentiality

The Permit/Variation requires the Operator to provide information to the Agency. The Agency will place the information onto the public registers in accordance with the requirements of the PPC Regulations. If the Operator considers that any information provided is commercially confidential, it may apply to the Agency to have such information withheld from the register as provided in the PPC Regulations. To enable the Agency to determine whether the information is commercially confidential, the Operator should clearly identify the information in question and should specify clear and precise reasons.

Variations to the permit

This Permit may be varied in the future. The Status Log within the Introductory Note to any such variation will include summary details of the Permit, variations issued up to that point in time and state whether a consolidated version of the Permit has been issued.

Surrender of the permit

Before this Permit can be wholly or partially surrendered, an application to surrender the Permit has to be made. For the applicant to be successful, they would have to be able to demonstrate to the Agency, in accordance with Regulation 19 of the PPC Regulations, that there is no pollution risk and that no further steps are required to return the site to a satisfactory state.

Transfer of the permit or part of the permit

Before the Permit can be wholly or partially transferred to another person, a joint application to transfer the Permit has to be made by both the existing and proposed holders, in accordance with Regulation 18 of the PPC Regulations. A transfer will be allowed unless the Agency considers that the proposed holder will not be the person who will have control over the operation of the installation or will not ensure compliance with the conditions of the transferred Permit. If the Permit authorises the carrying out of a specified waste management activity, then there is a further requirement that the transferee is considered to be a "fit and proper person" to carry out that activity.

Status Log

Detail	Date	Comment
Application BL 1096	Received 29/08/01 Duly Made 31/08/01	
First Schedule 4 Information Notice	Notice dated 17/12/01	Consolidated application incorporating response received 05/06/02
2nd Sch 4 Notice	Notice dated 11/04/03	Response dated 06/06/03
3rd Sch 4 Notice	Notice dated 17/07/03	Response dated 11/08/03
Additional information from Applicant. Revised Site plan and confirmation that landfill is not part of the Installation	Received 24/10/03	
Additional Information from Applicant	Received 10/05/04	
Permit BL1096	Determined 17/12/04	
Application for variation	Received 15/04/05	
First Schedule 7 Information Notice	Notice dated 21/07/05	Response dated 23/09/05 Response dated 09/01/06
Second Schedule 7 Information Notice	Notice dated 02/06/06	Response dated 03/08/06 Response dated 14/08/06 Response dated 15/09/06
Variation Notice YP3438	Determined 08/11/07	

End of introductory Note

ENVIRONMENT AGENCY

Variation Notice

Permit number (The Permit)
BL 1096

Variation Notice number
YP 3438

The Environment Agency in exercise of its powers under Regulation 17 of the Pollution Prevention and Control (England and Wales) Regulations 2000 (S.I. 2000 No. 1973) (as amended), hereby varies the Permit issued on 17th December 2004 and held by you.
Castle Cement Ltd ("the Operator"),

Whose Registered Office is
Park Square
3160 Solihull Parkway
Birmingham Business Park
Birmingham
B37 7YN

Company registration number 2182762

which relates to the operation of an Installation at
Padeswood Works
Padeswood
Mold
Flintshire
CH7 4HB

to the extent set out in Schedules 1 to 3 of this Variation Notice.

This Notice shall take effect from **09 November 2007 at 00.01 hours.**

Signed

Ann Weedy

Authorised to sign on behalf of the Environment Agency

Date

08 November 2007

SCHEDULE A - CONDITIONS TO BE DELETED

1. All previous conditions numbered 1 to 11 and Schedules 1 to 3.

SCHEDULE B - CONDITIONS TO BE AMENDED

2. None.

SCHEDULE C - CONDITIONS TO BE ADDED

3. Add conditions numbered 1 to 4 and Schedules 1 to 7 as attached to this notice.

Schedule C Conditions to be Added

1. Management

1.1 General management

1.1.1 The activities shall be managed and operated:

(a) in accordance with a management system, which identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents and non-conformances and those drawn to the attention of the operator as a result of complaints; and

(b) by sufficient persons who are competent in respect of the responsibilities to be undertaken by them in connection with the operation of the activities.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.1.4 All plant, equipment and technical means used in operating the Installation shall be maintained in good operating condition.

1.2 Accidents that may cause pollution

1.2.1 The operator shall:

(a) maintain and implement an accident management plan;

(b) review and record at least every 4 years or as soon as practicable after an accident, (whichever is the earlier) whether changes to the plan should be made;

(c) make any appropriate changes to the plan identified by a review.

1.3 Energy efficiency

1.3.1 The operator shall:

(a) take appropriate measures to ensure that energy is used efficiently in the activities;

(b) review and record at least every 4 years whether there are suitable opportunities to improve the energy efficiency of the activities; and

(c) take any further appropriate measures identified by a review.

1.4 Efficient use of raw materials

1.4.1 The operator shall:

(a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;

(b) maintain records of raw materials and water used in the activities;

(c) review and record at least every 4 years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and

(d) take any appropriate further measures identified by a review.

1.5 Avoidance, recovery and disposal of wastes produced by the activities

1.5.1 The operator shall:

(a) take appropriate measures to ensure that waste produced by the activities is avoided or reduced, or where waste is produced it is recovered wherever practicable or otherwise disposed of in a manner which minimises its impact on the environment;

(b) review and record at least every 4 years whether changes to those measures should be made; and

(c) take any further appropriate measures identified by a review.

1.6 Site security

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

1.7 Multiple operator installations

1.7.1 This is not a multiple operator installation.

1.8 Finance

1.8.1 The financial provision for the landfill for meeting the obligations under this permit set out in the agreement made between the operator and the Agency dated 08/11/2007 shall be maintained by the operator throughout the subsistence of this permit and the operator shall produce evidence of such provision whenever required by the Agency.

1.8.2 The operator shall ensure that the charges it makes for the disposal of waste in the landfill cover the cost of operating the landfill, as far as possible the cost of the financial provision required by condition 1.8.1 and the estimated costs for the closure and aftercare of the landfill.

2. Operations

2.1 Permitted activities

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

2.2 The site

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

2.3 Operating techniques

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

2.3.2 No raw materials or fuels listed in schedule 3 table S3.1 shall be used unless they comply with the specifications set out in that table.

2.3.3 The raw materials, fuels and wastes detailed in schedule 3 table S3.4 shall be stored in the locations and manner specified in that table.

2.3.4 Collection, intermediate storage and transport of cement kiln dust shall take place only in closed containers or transport systems.

2.3.5 Water conditioned cement kiln dust shall be loaded directly into vehicles in enclosed buildings and immediately and securely sheeted.

2.3.6 No new raw materials or fuels shall be used unless otherwise agreed in writing with the Environment Agency.

2.3.7 Each new material being introduced for use in Profuel® shall be agreed in writing with the Agency before use. The Agency shall be notified in writing at least one month prior to any proposal to use any new material.

2.3.8 All substitute fuels used at the Installation are subject to the following conditions:

(a) No radioactive materials or radioactive wastes (as defined by Sections 1 and 2 respectively of the Radioactive Substances Act 1993) shall be included;

(b) No substances with PCB concentrations greater than 10mg/kg shall be included;

(c) No substances with PCP concentrations greater than 100mg/kg shall be included;

(d) No pharmaceutical products, pesticide products, biocide products and iodine compounds shall be included except as constituents of other materials and at levels that are minimised as far as reasonably practicable;

(e) No dioxins or furans shall be included except as constituents of other materials and at levels that are minimised as far as reasonably practicable;

(f) No medical/clinical waste shall be included.

2.3.9 The Operator shall inform the Agency of the date of commissioning of all substitute fuels at least two weeks before the date proposed.

2.3.10 Substitute fuels shall not be burned, or shall cease to be burned as soon as practicable on Kiln 4 during periods of unstable operation or if:

(a) the kiln is in start-up (as agreed in writing with the Environment Agency); or

(b) the kiln is in shutdown (as agreed in writing with the Environment Agency); or

(c) any continuous emission limit value in schedule 4 table S4.1 is exceeded due to disturbances or failures of the abatement systems; or

(d) raw material feed rate or clinker production is less than 120te/hr; or

(e) the kiln temperature is below or falls below 1100^{0}C; or

(f) the calciner temperature is below or falls below 850^{0}C; or

(g) monitoring results required to demonstrate compliance with any continuous emission limit value in Schedule 4 Table S4.1 are unavailable for a period of four hours uninterrupted duration; or

(h) any other continuous monitors for temperature, pressure, oxygen or moisture on the kiln exhaust are unavailable for a period of four hours uninterrupted duration; or

(i) the cumulative duration of periods of CEMs failure over one calendar year on the kiln exceeds 60 hours

2.3.11 The operator shall record the beginning and end of each period of CEMS failure.

2.3.12 The Operator shall restore normal operation of the failed CEMs or replace the failed CEMs as rapidly as possible.

2.3.13 The operator shall interpret the end of the period of CEMs failure as the earliest of the following:

(a) when the failed equipment is repaired and brought back into normal operation; or

(b) when the Operator initiates a shut-down of the feed of substitute fuels to the kiln, as described in the application; or

(c) when a period of four hours has elapsed from when the CEMs failed; or

(d) when in any calendar year, an aggregated period of CEMs failures reaches 60 hours for the kiln

2.3.14 In the case of any continuous emission monitor being out of service for more than four hours, the Operator shall make arrangements for alternative methods of measurement. These are to be made in agreement with the Environment Agency.

2.3.15 A record shall be made at the Permitted Installation of any complaints concerning the Installation's effect or alleged effect on the environment. The record shall give the date of complaint, time of complaint, a summary of any investigation and the results of such investigation. Such records shall be made in a log kept for this purpose.

2.4 Off-site conditions

2.4.1 The operator shall, unless otherwise agreed in writing by the Agency, undertake monitoring for the parameters, at the locations and at not less than the frequencies specified, in the following tables in schedule 4 to this permit

(a) surface water specified in table S4.5

(b) ambient air monitoring specified in table S4.6.

2.5 Improvement programme

2.5.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Agency.

2.5.2 Except in the case of an improvement which consists only of a submission to the Agency, the operator shall notify the Agency within 14 days of completion of each improvement.

2.6 Pre-operational conditions

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

2.7 Landfill Engineering

2.7.1 No construction of any new cell shall commence until the operator has submitted construction proposals and the Agency has confirmed that it is satisfied with the construction proposals.

2.7.2 The construction of a new cell shall take place only in accordance with the approved construction proposals unless:

(a) any change to the approved construction proposals would have no impact on the performance of any element of the design; or

(b) a change has otherwise been agreed in writing by the Agency.

2.7.3 No disposal of waste shall take place in a new cell until the operator has submitted a CQA Validation Report and the Agency has confirmed that it is satisfied with the CQA Validation Report.

2.7.4 No construction of landfill Infrastructure shall commence until the operator has submitted relevant construction proposals or a written request to use previous construction proposals and the Agency has confirmed that it is satisfied with the construction proposals.

2.7.5 The construction of the landfill Infrastructure shall take place only in accordance with the approved construction proposals unless:

(a) any change to the approved construction proposals would have no impact on the performance of any element of the design; or

(b) a change has otherwise been agreed in writing by the Agency.

2.7.6 The operator shall submit a CQA Validation Report as soon as practicable following the construction of the relevant landfill Infrastructure.

2.7.7 Where pollution controls are immediately necessary to prevent an incident or accident, then conditions 2.7.4 and 2.7.5 do not apply and the relevant landfill Infrastructure may be constructed, provided that the construction proposals are submitted to the Agency as soon as practicable.

2.7.8 For the purposes of conditions 2.7.1, 2.7.3 and 2.7.4, the Agency shall be deemed to be satisfied where it has not, within the period of 4 weeks from the date of receipt of the relevant construction proposals or CQA Validation Report, either:

(a) confirmed whether or not it is satisfied; or

(b) informed the operator that it requires further information.

2.8 Waste acceptance

2.8.1 Substitute fuel shall only be accepted for use as fuel in kiln 4 if:

(a) it is of a type and quantity listed in schedule 3 table S3.2; and

(b) it conforms to the description in the documentation supplied by the producer and holder.

2.8.2 The operator shall ensure that prior to accepting substitute fuel subject to condition 2.3.2 at the site, it has obtained sufficient information about the hazardous wastes to be burned to demonstrate compliance with the characteristics described in schedule 3 table S3.1.

2.8.3 The operator shall take representative samples of all substitute fuel deliveries to the site unless otherwise agreed in writing with Agency and test a representative selection of these samples to verify conformity with the information obtained as required by condition 2.8.2. These samples shall be retained for inspection by the Agency for a period of at least one month after the material is burned and results of any analysis made of such samples will be retained for at least two years after the material is burned.

2.8.4 Wastes shall only be accepted for disposal in the landfill if:

(a) they are listed in schedule 3, table S3.3, and

(b) they are hazardous waste, and

(c) they are not liquid waste (including waste waters but excluding sludge), and

(d) they are not waste which in the conditions of landfill is explosive, corrosive, oxidising, highly flammable or flammable, and

(e) they are not hospital and other clinical infectious wastes from medical or veterinary establishments, and

(f) they are not chemical substances from research and development or teaching activities, for example laboratory residues, which are unidentified and/or which are new and whose effects on man and/or the environment are unknown, and

(g) all the relevant waste acceptance procedures set out in schedule 1 of the Landfill Regulations have been completed, and

(h) they fulfil the relevant waste acceptance criteria, and

(i) they have not been diluted or mixed solely to meet the relevant waste acceptance criteria, and

(j) they are wastes which have been treated, except for where treatment would not reduce its quantity or the hazards which it poses to human health or the environment.

2.8.5 The operator shall visually inspect:

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

(b) waste at the point of deposit in the landfill;

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

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

2.8.7 The total quantity of waste that shall be deposited in the landfill shall be limited by the pre-settlement levels shown on drawing ESID5.

2.8.8 The quantity of waste that is deposited in the landfill in any year shall not exceed the limits in schedule 1 table S1.5.

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

2.9 Leachate levels

2.9.1 The limits for the level of leachate listed in schedule 4 table S4.2 shall not be exceeded.

2.10 Closure, aftercare and decommissioning

2.10.1 The operator shall maintain and operate the activities so as to prevent or where that is not practicable, to minimise, any pollution risk on closure and decommissioning.

2.10.2 The operator shall maintain a site closure plan which demonstrates how the activities can be decommissioned to avoid any pollution risk and return the site of operation to a satisfactory state.

2.10.3 The operator shall carry out and record a review of the site closure plan at least every 4 years.

2.10.4 The site closure plan (or relevant part thereof) shall be implemented on final cessation or decommissioning of the activities or part thereof.

2.11 Site protection and monitoring programme

2.11.1 The operator shall, within 2 months of the issue of variation YP3438 dated 08/11/2007 (unless otherwise agreed in writing by the Agency), submit a Site Protection and Monitoring Programme.

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

3. Emissions and monitoring

3.1 Emissions to water, air or land

3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 4 tables S4.1, S4.3 and S4.4.

3.1.2 The limits given in that schedule shall not be exceeded.

3.1.3 Wastes produced at the site shall, as a minimum, be sampled and analysed in accordance with schedule 4 table S4.8. Additional samples shall be taken and tested and appropriate action taken, whenever:

(a) disposal or recovery routes change; or

(b) it is suspected that the nature or composition of the waste has changed such that the route currently selected may no longer be appropriate.

3.1.4 For Continuous Emission Monitoring for emissions to air the following conditions apply:

(a) the valid half-hourly average values shall be determined within the effective operating time (excluding the start-up and shut-down period) from the measured values after having subtracted the value of the confidence interval specified at (c) below. The daily average values shall be determined from those validated average values; and

(b) where it is necessary to calibrate or maintain the monitor and this means that data is not available for a complete half-hour period, the half-hourly average shall nonetheless be considered valid if measurements are available for a minimum of 20 minutes during the half-hour period. The number of half-hourly averages so validated shall not exceed 5 per day; and

(c) the continuous emission monitors used shall be such that, at the daily emission limit value, the values of the 95% confidence intervals of a single measured result shall not exceed the following percentages;

Carbon monoxide	10%
Sulphur dioxide	20%
Oxides of nitrogen (NO & NO_2 expressed as NO_2)	20%
Particulate matter	30%
Total organic carbon	30%
Hydrogen chloride	40%

(d) the daily average will be considered valid if no more than five half-hourly average values in the day have been determined not to be valid; and

(e) no more than ten daily average values per year shall be discarded due to malfunction or maintenance of the continuous measurement system; and

(f) only CEMs monitoring results to used to demonstrate compliance with limits set in this permit for the substances identified in condition (c) above are to be reported after deduction of the relevant confidence interval.

3.2 Emissions to groundwater

3.2.1 There shall be no emission from the activities into groundwater of any substance in List I (as defined by the Groundwater Regulations) contrary to those regulations.

3.2.2 There shall be no emission from the activities into groundwater of any substance in List II (as defined in the Groundwater Regulations) so as to cause pollution (as defined in those regulations).

3.2.3 The concentration levels in groundwater for the parameter(s) and monitoring point(s) set out in schedule 4 table S4.9 shall not be exceeded.

3.2.4 The operator shall submit to the Agency a review of the Hydrogeological Risk Assessment:

(a) between 9 and 6 months prior to the fourth anniversary of the granting of variation YP3438 dated 08/11/2007, and

(b) between 9 and 6 months prior to every subsequent 4 years after the fourth anniversary of the granting of variation YP3438 dated 08/11/2007.

3.3 Fugitive emissions of substances

3.3.1 Fugitive emissions of substances (excluding odour, noise and vibration) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.3.2 All liquids, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3.3 The limits for landfill gas set out in schedule 4, tables S4.10 and S4.11, shall not be exceeded.

3.4 Odour

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

3.5 Noise and vibration

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

3.5.2 The level of noise emitted from the site shall not exceed 50 dB, expressed as an $L_{Aeq,T}$, between 0700 and 2300 and 45 dB at any other time, as measured or assessed at the sensitive property boundaries identified in section 2.9 of the Application. The locations shall be chosen and the measurements and assessment made according to BS4142:1997.

3.5.3 The Operator shall maintain a Noise Management Plan within the Installation's Integrated Management System.

3.5.4 Emergency generators / alarms / sirens / relief valves shall only be tested between the hours of 10.00 and 17.00 Monday to Friday and not on any Public Holiday.

3.6 Monitoring

3.6.1 The operator shall, unless otherwise agreed in writing by the Agency, undertake the monitoring and any other actions specified in the following tables in schedule 4 to this permit:

(a) point source emissions specified in tables S4.1, S4.3 and S4.4;

(b) leachate specified in tables S4.2 and S4.12;

(c) surface water specified in table S4.5;

(d) ambient air monitoring specified in table S4.6;

(e) process monitoring specified in table S4.7;

(f) waste sampling specified in table S4.8;

(g) groundwater specified in tables S4.9 and S4.13;

(h) landfill gas specified in tables S4.10 and S4.11;

3.6.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.

3.6.3 A topographical survey of the landfill referenced to ordnance datum shall be carried out:

(a) annually, and

(b) prior to the disposal of waste in any new cell or new development area of the landfill, and

(c) following closure of the landfill or part of the landfill.

The topographical survey shall be used to produce a plan of a scale adequate to show the surveyed features of the site.

3.6.4 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.6.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate) unless otherwise agreed in writing by the Agency. Newly installed CEMs, or CEMs replacing existing CEMs, shall have MCERTS certification and have an MCERTS certified range which is not greater than 1.5 times the daily emission limit value (ELV) specified in schedule 4 table S4.1. The CEM shall also be able to measure instantaneous values over the ranges which are to be expected during all operating conditions. If it is necessary to use more than one range setting of the CEM to achieve this requirement, the CEM shall be verified for monitoring supplementary, higher ranges.

3.6.5 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 4 tables S4.1, S4.3 and S4.4 unless otherwise specified in that schedule. Safe means of access shall be provided to other sampling/monitoring points when required by the Agency.

3.6.6 Where Continuous Emission Monitors are installed to comply with the monitoring requirements for emission point A8 in schedule 4 table S4.1, the Operator shall perform a QAL2 test as specified in BS EN 14181 at least every three years and when there are significant changes to either the process, the fuel used or to the CEMs themselves.

3.6.7 Where Continuous Emission Monitors are installed to comply with the monitoring requirements for emission point A8 in schedule 4 table S4.1, the Operator shall perform an Annual Surveillance Test (AST) at least annually, as specified within BS EN 14181.

3.6.8 Within 6 months of the issue of variation YP3438 dated 08/11/2007 (unless otherwise agreed in writing by the Agency) the site reference data identified in the Site Protection and Monitoring Programme shall be collected and submitted to the Agency.

3.7 Transfers off-site

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

4. Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by the Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

(i) the results of groundwater monitoring;

(ii) the Site Protection and Monitoring Programme;

(iii) ambient air monitoring;

(iv) sub-surface landfill gas monitoring;

(v) landfill leachate levels, quality and quantities;

(vi) waste types and quantities;

(vii) topographical surveys of the landfill; and

(viii) the specification and as built drawings of the basal, sidewall and capping engineering systems of the landfill

4.1.2. Any records required to be made by this permit shall be supplied to the Agency within 14 days where the records have been requested in writing by the Agency.

4.1.3. All records required to be held by this permit shall be held on site and shall be available for inspection by the Agency at any reasonable time.

4.2 Reporting

4.2.1 A report or reports on the performance of the activities over the previous year shall be submitted to the Agency by 31 January (or other date agreed in writing by the Agency) each year. The report(s) shall include as a minimum:

(a) a review of the results of the monitoring and assessment carried out in accordance with this permit against the relevant assumptions, parameters and results in the assessment of the impact of the emissions submitted with the application and the risk assessments submitted with the variation application;

(b) where the operator's management system encompasses annual improvement targets, a summary report of the previous year's progress against such targets;

(c) the annual production /treatment data set out in schedule 5 table S5.2;

(d) the performance parameters set out in schedule 5 table S5.3 using the forms specified in table S5.4 of that schedule;

(e) details of any contamination or decontamination of the site which has occurred;

(f) the topographical surveys of the landfill required by condition 3.6.3 other than those submitted as part of a CQA validation report;

(g) the volumetric difference (reported in cubic metres) between the most recent topographical survey and the previous annual topographical survey i.e. the additional volume of the landfill void that is occupied by waste;

(h) an assessment of the settlement behavior of the landfill body based on the difference between the most recent topographical survey and previous annual topographical survey for the areas of the landfill which did not receive waste between the surveys;

(i) a calculation of the remaining capacity of the landfill (reported in cubic metres) derived from the pre-settlement contours and the most recent topographical survey;

(j) the compliance testing for the landfill undertaken in the period;

(k) the functioning and monitoring of kiln 4 in a format agreed with the Environment Agency. The report shall, as a minimum requirement (as required by Article 12(2) of the Waste Incineration Directive) give an account of the running of the process and the emissions into air and water compared with the emission standards in the WID.

(l) Fugitive emissions shall be reviewed on an annual basis and a summary report on this review shall be prepared detailing such releases and the measures taken to reduce them.

4.2.2 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

(a) in respect of the parameters and emission points specified in schedule 5 table S5.1;

(b) for the reporting periods specified in schedule 5 table S5.1 and using the forms specified in schedule 5 table S5.4 ; and

(c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.3 A summary report of the waste types and quantities accepted and removed from the site shall be made for each quarter. It shall be submitted to the Agency within one month of the end of the quarter and shall be in the format required by the Agency.

4.2.4 The operator shall, unless notice under this condition has been served within the preceding 4 years, submit to the Agency, within 6 months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.2.5 All reports and notifications required by the permit shall be sent to the Agency using the contact details supplied in writing by the Agency

4.2.6 The results of reviews and any changes made to the Site Protection and Monitoring Programme shall be reported to the Agency, within 1 month of the review or change.

4.3 Notifications

4.3.1 The Agency shall be notified without delay following the detection of:

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

(b) the breach of a limit specified in the permit;

(c) any significant adverse environmental effects: and

(d) any incident which has led to a period of abnormal operation of co-incineration plant, as defined in schedule 7.

4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 6 to this permit within the time period specified in that schedule.

4.3.3. Prior written notification shall be given to the Agency of the following events and in the specified timescales:

(a) as soon as practicable prior to the permanent cessation of any of the permitted activities;

(b) as soon as practicable prior to the cessation of the landfill disposal activities, for a period likely to exceed 1 month; and

(c) at least 7 days prior to the resumption of the landfill disposal activities after a cessation notified under (b) above.

(d) cessation of operation of part or all of the activities for a period likely to exceed 1 year; and

(e) resumption of the operation of part or all of the activities after a cessation notified under (d) above.

4.3.4 The Agency shall be given at least 14 days notice before implementation of any part of the site closure plan in respect of any activities other than the disposal of waste in the landfill.

4.3.5 Where the Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Agency when the relevant monitoring is to take place. The operator shall provide this information to the Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.6 The Agency shall be notified within 7 days of any changes in technically competent management and the name of any incoming person together with evidence that such person has the required technical competence.

4.3.7 The Agency shall be provided, within 14 days of the operator or any relevant person being convicted of a relevant offence, (unless such information has already been notified to the Agency), with details of the nature of the offence, the place and date of conviction, and the sentence imposed.

4.3.8 The Agency shall be notified within 14 days of the operator and/or any relevant person lodging an appeal against a conviction for any relevant offence and of the outcome when the appeal is decided.

4.3.9 The Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

(a) any change in the operator's trading name, registered name or registered office address;

(b) any change to particulars of the operator's ultimate holding company (including details of an ultimate holding company where an operator has become a subsidiary); and

(c) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Climate Change Agreement

4.3.10 Where the operator has entered into a climate change agreement with the Government, the Agency shall be notified within one month of:

(a) a decision by the Secretary of State not to re-certify the agreement;

(b) a decision by either the operator or the Secretary of State to terminate the agreement; and

(c) any subsequent decision by the Secretary of State to re-certify such an agreement.

4.3.11 Where the operator has entered into a direct participant agreement in the emissions trading scheme which covers emissions relating to the energy consumption of the activities, the operator shall notify the Agency within one month of:

(a) a decision by the operator to withdraw from or the Secretary of State to terminate that agreement.

(b) a failure to comply with an annual target under that agreement at the end of the trading compliance period.

4.4 Interpretation

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

Schedule 1 - Operations

Table S1.1 Activities

Activity listed in Schedule 1 of the PPC Regulations	Description of specified activity	Limits of specified activity
Section 3.1, Part A(1)(a), The production of cement clinker or the production and grinding of cement clinker.	All raw materials storage, handling and preparation.	Receive raw materials from suppliers, including checking for suitability for use in line with the Integrated Management System ("IMS"). Preparation and storage of raw materials or process feedstocks, including crushing, blending, other processing and feeding materials to kiln 4.
	All fuel handling, storage and preparation.	Coal, petcoke, gas oil, kerosene, Profuel©, Cemfuel© and Tyres including receipt on site through storage, handling, crushing, blending, other processing and feeding materials to the kiln system. This includes the use of gas oil or kerosene as a start-up fuel.
	Cement kiln No 4 and associated cooler.	Operation of cement kiln systems including feed of all materials and fuels into the kiln system through to discharge of clinker from the cooler and discharges to air from the stacks.
	All cement clinker storage and associated milling.	Clinker handling, storage and milling, including feed of clinker from clinker coolers or import facility, receipt of grinding aids and reducing agents, all storage, transport, milling and blending activities through to discharge from cement milling area to export facilities.
	All cement storage, blending, packing and loading.	Cement handling, storage, packing and dispatch, including all transport, bulk storage through to bulk discharge to road transport or bagging, storage and loading to road transport.
Section 5.2 Part A(1) (a) , The disposal of waste in a landfill.	Landfill for hazardous waste (landfill classification under the Landfill Regulations 2002)	Receipt, handling, storage and disposal of wastes, consisting of the types and quantities specified in schedule 3, table S3.3, as an integral part of landfilling.
Directly Associated Activity		
Water discharges to controlled waters.	Discharges of site drainage	From surface water management system to point of entry to controlled waters.
All waste storage and handling	Waste storage and handling	From the on site generation of waste through to dispatch for recovery or disposal
Leachate management	Recirculation of leachate within the landfill	Leachate arising from the Permitted landfill

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
The Consolidated Response to the Sch-4 Notice issued 17 December 2001	Sections 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 2.10, 2.11	05/06/2002
The response to the Sch 4 Notice issued 11 April 2003	The response given to questions 6, 7, 8, 9, 10, 11,12,13,14,15,16,17,18, 23, 25, 26, 27, 28, 29 & 39	06/06/2003
The additional information May 2004	Sections 3, 4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17 and 18	10/05/2004
Variation Application	The response to questions, 2.1, 2.2, 2.3, 2.4 and 2.5 in part B of the Variation Application Form	15/04/05
The response to the Sch 7 Notice issued 21 July 2005	The response to questions A19, A20, A23, A29, A65, A66, A70, A79 and A81	23/09/05
The response to the Sch 7 Notice issued 2 June 2006	The response to questions B4, B8, B21 and B23	03/08/06 and 14/08/06

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
S1.3.1	The Operator shall carry out tests to verify the temperature, residence time and oxygen content of the combustion gas in the Kiln 4 and calciner under the most unfavourable normal operating conditions. The results shall be submitted in writing to the Agency.	6 months after re-commissioning of the substitute fuel feed to the calciner
S1.3.2	The Operator shall review the techniques for continuous measurements for heavy metals, dioxins/furans, and dioxin-like PCBs, including cost, availability, accuracy, detection limits and submit a written report to the Agency.	30/09/10 and every 3 years thereafter
S1.3.3	A noise survey shall be carried out to measure the impact of the Installation at sensitive locations, following the guidance in Agency Guidance H3. A written report shall be submitted to the Agency. The report shall include a programme of work to address any measures highlighted from the monitoring.	30/03/08
S1.3.4	The operator shall complete a comprehensive audit including monitoring of all low level point source, and fugitive, emissions of particulates from the landfill. The operator needs to ensure that the monitoring results are representative of their operations and the typical weather conditions including unfavourable weather conditions. The operator shall then use the findings of the audit to assess the combined impact of the emissions on air quality for both short term and long term scenarios. The operator shall then review BAT for preventing or minimising any such emissions. A report outlining the assessment, its conclusions and measures to address any issues raised (including an implementation plan) is to be forwarded to the Agency. This report will also include proposed control and trigger levels for dust monitoring.	6 months from first waste input to the landfill
S1.3.5	The Operator shall carry out a study to identify those techniques which can be applied to reduce the emissions of particulate matter from the existing cement mills to 10 mg/m^3. A report, including a timetable for implementation, if appropriate, shall be submitted to the Agency	31/12/07
S1.3.6	The Operator shall carry out a programme of monitoring of the exhaust gas from the calciner and in the pre-heater to establish the concentrations and proportions of VOCs, CO and SO_2 measured at emission point A8, which result from the burning of substitute fuel.	6 months after re-commissioning of the substitute fuel feed to the calciner
S1.3.7	Written proposals for the location, design, installation and monitoring schedule of additional groundwater monitoring points shall be submitted to the Environment Agency for approval. The proposals shall include a timetable for the installation of the monitoring points and shall be in accordance with Environment Agency guidance document LFTGN02 "Guidance on monitoring of landfill leachate, groundwater and surface water". The proposed additional groundwater monitoring points, as determined by the Environment Agency following receipt of the proposals, shall be installed by the Operator within 6 months of the date of confirmation in writing by the Environment Agency of its determination and the revised monitoring schedule implemented immediately following installation.	08/05/08
S1.3.8	A report detailing borehole specific groundwater concentration levels for all down hydraulic gradient boreholes (including new boreholes installed in accordance with improvement condition S1.3.7) shall be submitted to the Environment Agency for approval. The borehole specific groundwater concentration levels shall be derived in accordance with Environment Agency guidance document LFTGN01 "Hydrogeological Risk Assessment for Landfills" using the first 12 months data obtained. The borehole specific concentration levels shall be incorporated into the groundwater management and monitoring plan from the date of confirmation in writing by the Environment Agency of its determination.	3 months after completion of the first year of groundwater monitoring

S1.3.9	The Operator shall submit to the Environment Agency, for its approval in writing, a revised Leachate Management and Monitoring Plan detailing which leachate monitoring points will be monitored within the site in order to provide adequate leachate level and quality monitoring. Following determination by the Environment Agency the operator shall implement the plan with any amendments as approved by the Environment Agency immediately.	08/02/08

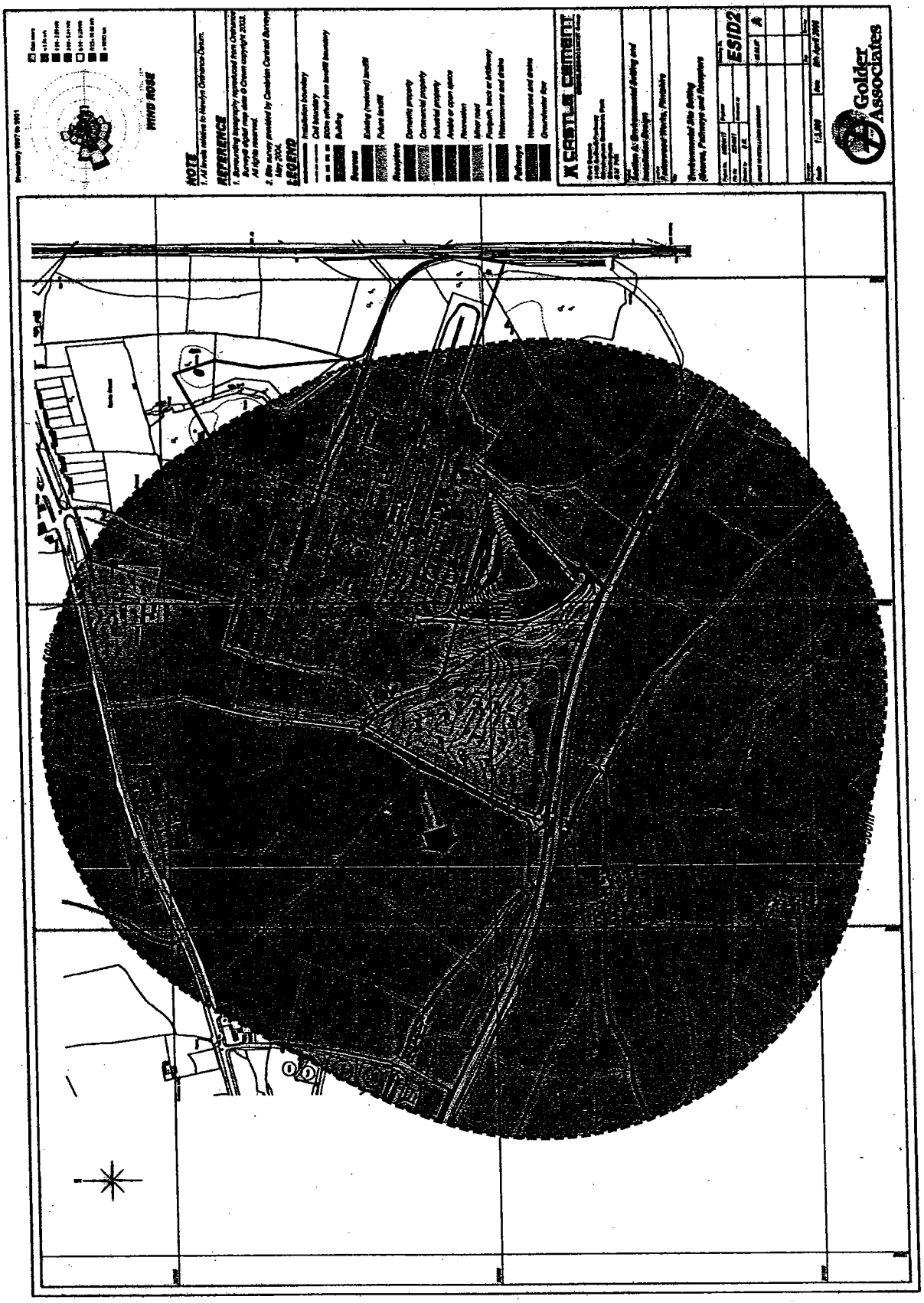
Table S1.4 Pre-operational measures for future development

Reference	Operation	Pre-operational Measures
S1.4.1	Hazardous waste landfill	The Operator shall submit to the Environment Agency, for its approval in writing, a revised Landfill Gas Management and Monitoring Plan, which shall include a review of the perimeter gas monitoring data. The review shall propose assessment and compliance limits, based upon 6 sets of data collected at monthly intervals. Gas monitoring shall be undertaken in accordance with the Environment Agency's document, "Guidance on the Management of Landfill Gas" (LFTGN03) dated September 2004. Following determination by the Environment Agency the operator shall implement the plan with any amendments as approved by the Environment Agency immediately.

Table S1.5 Annual waste input limits to landfill

Category	Limit Tonnes/ Year
Hazardous waste	10,000
Inert Waste for engineering including cover	100

Schedule 2 - Site plan



Schedule 3 - Waste types, raw materials and fuels

Table S3.1 Raw materials and fuels (including substitute fuels)

Raw materials and fuel description	Specification
Blended coal and petcoke	Less than 2.5% sulphur content.
Chipped end-of-life tyres	Less than 2.0% sulphur content.
Cemfuel®	Calorific Value (range allowed) 15 – 42 MJ/kg (gross) Maximum 1.0% w/w sulphur content Maximum 3.5% w/w chlorine Maximum 0.5% w/w fluorine Maximum 0.5% w/w bromine Maximum 120 mg/kg iodine Maximum 24 mg/kg mercury Maximum 40 mg/kg cadmium and thallium in total Maximum 360 mg/kg antimony Maximum 60 mg/kg arsenic Maximum 600 mg/kg chromium Maximum 120 mg/kg cobalt Maximum 720 mg/kg copper Maximum 720 mg/kg lead Maximum 300 mg/kg manganese Maximum 360 mg/kg nickel Maximum 120 mg/kg tin Maximum 60 mg/kg vanadium Maximum 2160 mg/kgTotal Group III Metals Maximum 30% w/w solids Maximum 8% w/w ash Maximum 20% w/w water
Profuel®	Calorific Value (minimum) 15 MJ/kg (gross) Maximum 0.5% w/w sulphur content Maximum 0.9% w/w chlorine Maximum 0.25% w/w total fluorine, bromine and iodine Maximum 10 mg/kg mercury Maximum 500 mg/kg zinc Maximum 100 mg/kg silver Maximum 20 mg/kg cadmium Maximum 20 mg/kg thallium Maximum 100 mg/kg antimony Maximum 50 mg/kg arsenic Maximum 100 mg/kg chromium Maximum 75 mg/kg cobalt Maximum 200 mg/kg copper Maximum 200 mg/kg lead Maximum 100 mg/kg manganese Maximum 100 mg/kg nickel Maximum 50 mg/kg tin Maximum 100 mg/kg vanadium Maximum 800 mg/kg total Group III Metals

Table S3.2 Permitted waste types and quantities for use as substitute fuel in kiln 4		
EWC code	**Description**	**Maximum input**
19 02 08*	Liquid combustible wastes containing dangerous substances consisting of Cemfuel® only	Kiln 100% thermal input 8.54 tonnes / hour
19 02 10	Combustible wastes other than those mentioned in 19 02 08 and 19 02 09 consisting of Profuel® only	Calciner 75% thermal input 11.1 tonnes / hour Kiln 20% thermal input 2.47 tonnes / hour
16 01 03	End-of-life tyres consisting of chipped tyres only	Calciner 50% thermal input 3.08 tonnes / hour

Table S3.3 Permitted waste types and quantities for the landfill	
Maximum quantity	10,000 tonnes per annum
EWC Code	**Description**
10 13 12*	Solid wastes from gas treatment containing dangerous substances (cement kiln dust)
01 01 02	Waste from mineral non-metalliferous excavation (for capping and restoration only)
01 04 08	Waste gravel and crushed rocks (not containing dangerous substances) (for capping and restoration only)
01 04 09	Waste sand and clays (for capping and restoration only)
17 05 04	Soil and stones (not containing dangerous substances) (for capping and restoration only)
20 02 02	Soil and stones (not containing dangerous substances) (for capping and restoration only)

Table S3.4 Raw material, fuel (including substitute fuel) and waste storage		
Raw material, fuel or waste	**Location of Storage on site**	**Storage Conditions**
Limestone	Crane Store	Enclosed Building
Shale	Crane Store	Enclosed Building
Sand	Crane Store	Enclosed Building/Covered Area
Pulverised Fuel Ash	Crane Store/Coal Store	Enclosed Building/Covered Area
Petcoke	Coal Store	Covered Area
Coal	Coal Store	Covered Area/uncovered on concrete plinth
Gypsum	Crane Store	Enclosed Building
Gas oil or kerosene	Oil storage tank	Within bunded area
Tyres	Tyres Storage Facility	Bunded area/specially designed enclosed trailers
Cemfuel®	Cemfuel® Storage Facility	Bunded Storage Tanks
Profuel®	Profuel® Storage Facility	Enclosed Building/specially designed enclosed trailers
Lubricating oils and other maintenance fluids.	As detailed in application.	Bunded storage points.
Fuel oil for site vehicles.	As detailed in application.	Double walled tank
Grinding aids and air entrainers.	As detailed in application.	Receipt containers
Ferrous sulphate	As detailed in application	Dedicated hopper
Stannous chloride	Cement Mill Buildings	Receipt containers
Cement kiln dust from Kiln 4	Crumbeliser plant	Dedicated enclosed storage silo as a dry powder then conditioned with water for transport
Other waste	As detailed in application and the site's IMS	As detailed in application and the site's IMS

Schedule 4 – Emissions and monitoring

Table S4.1 Point source emissions to air except during abnormal operation– emission limits and monitoring requirements

Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A3 [Point A3 on drawing number 401.00-11-0016-P.00]	Particulate matter	Cement Mill 1 via 17.5 metre high stack	30 mg/m^3	hourly average	Continuous	BS EN 13284-2 [4]
A4 [Point A4 on drawing number 401.00-11-0016-P.00]	Particulate matter	Cement Mill 2 via 17.5 metre high stack	30 mg/m^3	hourly average	Continuous	BS EN 13284-2 [4]
A5 [Point A5 on drawing number 401.00-11-0016-P.00]	Particulate matter	Cement Mill 3 via 27 metre high stack	30 mg/m^3	hourly average	Continuous	BS EN 13284-2 [4]
A6 [Point A6 on drawing number 401.00-11-0016-P.00]	Particulate matter	Cement Mill 4 Mill filter via 16.7 metre high stack	30 mg/m^3	hourly average	Continuous	BS EN 13284-2 [4]
A7 [Point A7 on drawing number 401.00-11-0016-P.00]	Particulate matter	Cement Mill 4 Classifier via a 21.5 metre high stack	30 mg/m^3	hourly average	Continuous	BS EN 13284-2 [4]
A8 [Point A8 on drawing number 401.00-11-0016-P.00]	Particulate matter	Kiln 4 via a 112 metre high stack	20 mg/m^3	½-hr average	Continuous	BS EN 13284-2 [4]
			10 mg/m^3	daily average	Continuous	BS EN 13284-2 [4]
			mg/m^3 No limit set	periodic over minimum 1-hour period	Bi-annual	BS EN 13284-1
A8 [Point A8 on drawing number 401.00-11-0016-P.00]	VOCs as Total Organic Carbon (TOC)	Kiln 4 via a 112 metre high stack	60 mg/m^3	½-hr average	Continuous	BS EN 12619 [4]
			60 mg/m^3	daily average	Continuous	BS EN 12619 [4]
			mg/m^3 No limit set	periodic over minimum 4 hour period, data to be reported as ½-hour averages	Bi-annual	BS EN 12619

Table S4.1 Point source emissions to air except during abnormal operation– emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A8 [Point A8 on drawing number 401.00-11-0016-P.00]	Hydrogen chloride	Kiln 4 via a 112 metre high stack	20 mg/m^3	½-hr average	Continuous	MCERTS certified instruments [5]
			10 mg/m^3	daily average	Continuous	MCERTS certified instruments [5]
			mg/m^3 No limit set	periodic over minimum 1-hour period	Bi-annual	BS EN 1911
A8 [Point A8 on drawing number 401.00-11-0016-P.00]	Carbon monoxide	Kiln 4 via a 112 metre high stack	3000 mg/m^3	½-hr average	Continuous	ISO 12039 [4]
			1200 mg/m^3	daily average	Continuous	ISO 12039 [4]
			mg/m^3 No limit set	periodic over minimum 4 hour period, data to be reported as ½-hour averages	Bi-annual	ISO 12039
A8 [Point A8 on drawing number 401.00-11-0016-P.00]	Sulphur dioxide	Kiln 4 via a 112 metre high stack	500 mg/m^3	½-hr average	Continuous	BS 6069-4.4[4]
			200 mg/m^3	daily average	Continuous	BS 6069-4.4[4]
			mg/m^3 No limit set	periodic over minimum 4 hour period, data to be reported as ½-hour averages	Bi-annual	BS 6069-4.1

Table S4.1 Point source emissions to air except during abnormal operation- emission limits and monitoring requirements

Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A8 [Point A8 on drawing number 401.00-11-0016-P.00]	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	Kiln 4 via a 112 metre high stack	1500 mg/m³	½-hr average	Continuous	ISO 10849[4]
			500 mg/m³	daily average	Continuous	ISO 10849[4]
			mg/m³ No limit set	periodic over minimum 4 hour period, data to be reported as ½-hour averages	Bi-annual	ISO 10849 or BS ISO 11564
A8 [Point A8 on drawing number 401.00-11-0016-P.00]	Hydrogen fluoride	Kiln 4 via a 112 metre high stack	1 mg/m³	periodic over minimum 30 minute, maximum 8 hour period	Bi-annual	USEPA Method 26/26A
A8 [Point A8 on drawing number 401.00-11-0016-P.00]	Cadmium and thallium and their compounds (total) [2]	Kiln 4 via a 112 metre high stack	0.05 mg/m³	periodic over minimum 30 minute, maximum 8 hour period	Bi-annual	BS EN 14385
A8 [Point A8 on drawing number 401.00-11-0016-P.00]	Mercury and its compounds [2]	Kiln 4 via a 112 metre high stack	0.05 mg/m³	periodic over minimum 30 minute, maximum 8 hour period	Bi-annual	BS EN 13211
A8 [Point A8 on drawing number 401.00-11-0016-P.00]	Zinc and its compounds [2]	Kiln 4 via a 112 metre high stack	mg/m³ No limit set	periodic over minimum 30 minute, maximum 8 hour period	Bi-annual	
A8 [Point A8 on drawing number 401.00-11-0016-P.00]	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total) [2]	Kiln 4 via a 112 metre high stack	0.5 mg/m³	periodic over minimum 30 minute, maximum 8 hour period	Bi-annual	BS EN 14385
A8 [Point A8 on drawing number 401.00-11-0016-P.00]	Dioxins / furans (I-TEQ)	Kiln 4 via a 112 metre high stack	0.1 ng/m³	periodic over minimum 6 hours, maximum 8 hour period [3]	Bi-annual	BS EN 1948

Table S4.1 Point source emissions to air except during abnormal operation- emission limits and monitoring requirements

Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A8 [Point A8 on drawing number 401.00-11-0016-P.00]	Dioxins / furans (WHO-TEQ Humans / Mammals)[6] (WHO-TEQ Fish)[6] (WHO-TEQ Birds)[6]	Kiln 4 via a 112 metre high stack	ng/m³ No limit set	periodic measurement, average value over sample period of between 6 and 8 hours.	Bi-annual	To be determined utilising sampling and analytical techniques developed for dioxins/furans (BS EN 1948)
A8 [Point A8 on drawing number 401.00-11-0016-P.00]	Dioxin-like PCBs (WHO-TEQ[6] Humans / Mammals) (WHO-TEQ Fish)[6] (WHO-TEQ Birds)[6]	Kiln 4 via a 112 metre high stack	ng/m³ No limit set	periodic measurement, average value over sample period of between 6 and 8 hours.	Bi-annual	To be determined utilising sampling and analytical techniques developed for dioxins/furans (BS EN 1948)
A8 [Point A8 on drawing number 401.00-11-0016-P.00]	Specific individual poly-cyclic aromatic hydrocarbons (PAHs), as specified in Schedule 7	Kiln 4 via a 112 metre high stack	mg/m³ No limit set	periodic measurement, average value over sample period of between 30 minutes and 8 hours.	Bi-annual	Procedure shall use BS ISO 11338-1 and BS-ISO 11338-2.
A8 [Point A8 on drawing number 401.00-11-0016-P.00]	Benzene	Kiln 4 via a 112 metre high stack	mg/m³ No limit set	periodic measurement, average value over sample period of between 30 minutes and 8 hours.	Bi-annual	
A8 [Point A8 on drawing number 401.00-11-0016-P.00]	1,3 Butadiene	Kiln 4 via a 112 metre high stack	mg/m³ No limit set	periodic measurement, average value over sample period of between 30 minutes and 8 hours.	Bi-annual	

Table S4.1 Point source emissions to air except during abnormal operation- emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A9 [Point A9 on drawing number 401.00-11-0016-P.00]	Particulate matter	Kiln 4 Cooler Exhaust via a 35 metre stack	50 mg/m^3	hourly average	Continuous	BS EN 13284-2 [4]

Note 1: See Schedule 7 for reference conditions

Note 2: Metals include gaseous, vapour and solid phases as well as their compounds (expressed as the metal or the sum of the metals as specified). Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V mean antimony, arsenic, lead, chromium, cobalt, copper, manganese, nickel and vanadium respectively.

Note 3: The I-TEQ sum of the equivalence factors to be reported as a range based on: All congeners less than the detection limit assumed to be zero as a minimum, and all congeners less than the detection limit assumed to be at the detection limit as a maximum.

Note 4: MCERTS certification to the appropriate ranges and determinands is a demonstration of compliance to the applicable standards.

Note 5: The certification range for MCERTS equipment should be 1.5 times the daily emission limit value. The CEM shall also be able to measure instantaneous values over the ranges that are to be expected during all operating conditions. If it is necessary to use more than one range setting of the CEM to achieve this requirement, the CEM shall be verified for monitoring supplementary, higher ranges.

Note 6: The TEQ sum of the equivalence factors to be reported as a range based on: All congeners less than the detection limit assumed to be zero as a minimum, and all congeners less than the detection limit assumed to be at the detection limit as a maximum.

Table S4.2 Leachate level limits and monitoring requirements			
Monitoring point reference/ Description	**Limit**	**Monitoring frequency**	**Monitoring method**
LM1, LM2, LM3, LM4 and LM5 identified on Plan ESID7A , revision A dated 10.08.05 and other monitoring points to be agreed in writing	0.5 m above cell base	Monthly	As per Variation Application, Volume 3, Appendix 2 and the Schedule 7 response of 23 September 2005, answers to questions A19, A20 and A81

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

Emission point Ref. & Location	Parameter	Source	Limit (incl unit)	Reference Period	Monitoring Frequency	Monitoring Standard or Method
W1 on drawing number 401.00-11-0016-P.00 emission to tributary of the Black Brook	Suspended Solids	Site surface water drainage via the settlement lagoon	50 mg/l	Spot Sample	Weekly	
W1 on drawing number 401.00-11-0016-P.00 emission to tributary of the Black Brook	pH	Site surface water drainage via the settlement lagoon	≥6 and ≤9.5 pH units	Instantaneous	Continuous	
			≥6 and ≤9.5 pH units	Spot sample	Weekly	
W1 on drawing number 401.00-11-0016-P.00 emission to tributary of the Black Brook	BOD	Site surface water drainage via the settlement lagoon	10mg/l	Spot sample	Weekly	
W1 on drawing number 401.00-11-0016-P.00 emission to tributary of the Black Brook	Temperature	Site surface water drainage via the settlement lagoon	≤23°C	Instantaneous	Continuous	
			≤23°C	Spot sample	Weekly	
W1 on drawing number 401.00-11-0016-P.00 emission to tributary of the Black Brook	Volumetric flow	Site surface water drainage via the settlement lagoon	m^3/day No limit set	Instantaneous	Continuous	
W1 on drawing number 401.00-11-0016-P.00 emission to tributary of the Black Brook	Oil or grease	Site surface water drainage via the settlement lagoon	None visible	Spot Sample	Weekly	

Table S4.4 Point source emissions to sewer, effluent treatment plant or by tankering or other transfer off-site– emission limits and monitoring requirements

Emission point Ref. & Location	Parameter	Source	Limit (incl unit)	Reference Period	Monitoring Frequency	Monitoring Standard or Method
S1 on drawing number 401.00-11-0016-P.00	No parameters set	Vehicle wash water via catchpits and oil/water separator	No limit set	-	-	

Table S4.5 Surface water monitoring requirements

Location or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
SW1, SW2, SW3 and SW4 as indicated on plan ESID 11	BOD	Quarterly	As per Variation Application, Volume 3, Appendix 3	
SW1, SW2, SW3 and SW4 as indicated on plan ESID 11	COD	Quarterly	As per Variation Application, Volume 3, Appendix 3	
SW1, SW2, SW3 and SW4 as indicated on plan ESID 11	Chloride	Quarterly	Monitoring to be carried out in accordance with Environment Agency Document "Guidance on Monitoring of Landfill Leachate, Groundwater and Surface water" (LFTGN02), unless otherwise agreed in writing with the Agency	
SW1, SW2, SW3 and SW4 as indicated on plan ESID 11	Suspended solids	Quarterly	As per Variation Application, Volume 3, Appendix 3 and the Schedule 7 response of 23 September 2005, answer to question A23	
SW1, SW2, SW3 and SW4 as indicated on plan ESID 11	pH	Quarterly	As per Variation Application, Volume 3, Appendix 3	
SW1, SW2, SW3 and SW4 as indicated on plan ESID 11	Electrical conductivity	Quarterly	As per Variation Application, Volume 3, Appendix 3	
SW1, SW2, SW3 and SW4 as indicated on plan ESID 11	Potassium	Quarterly	As per Variation Application, Volume 3, Appendix 3	
SW1, SW2, SW3 and SW4 as indicated on plan ESID 11	Cadmium	Quarterly	As per Variation Application, Volume 3, Appendix 3	
SW1, SW2, SW3 and SW4 as indicated on plan ESID 11	Mercury	Quarterly	As per Variation Application, Volume 3, Appendix 3	
SW1, SW2, SW3 and SW4 as indicated on plan ESID 11	Copper	Quarterly	As per Variation Application, Volume 3, Appendix 3	
SW1, SW2, SW3 and SW4 as indicated on plan ESID 11	Lead	Quarterly	As per Variation Application, Volume 3, Appendix 3	
SW1, SW2, SW3 and SW4 as indicated on plan ESID 11	Selenium	Quarterly	As per Variation Application, Volume 3, Appendix 3	

Table S4.6 Ambient air monitoring requirements				
Location or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Penyffordd and Penymynydd Bowling Club, Park Crescent, Off Abbots Lane, Penyffordd, NGR SJ 302 612	PM_{10}, sulphur dioxide and nitrogen dioxide	Continuous for a minimum of 12 months from the date of issue of Variation Notice YP3438 dated 08/11/2007 or as otherwise agreed in writing.		Data collected and ratified according to the guidelines used in the UK Automatic Urban and Rural Network (AURN) and those outlined in Technical Guidance Note LAQM.TG(03)

Table S4.7 Process monitoring requirements				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Weather Station Cement Silo 6	Wind speed and direction	Continuous	Not applicable	
Cyclone pre-heater	Temperature and pressure	Continuous	Not applicable	
Kiln inlet	Temperature, carbon monoxide content and oxygen content	Continuous	Not applicable	
Tertiary air	Temperature	Continuous	Not applicable	
Clinker cooler	Temperature	Continuous	Not applicable	
Kiln exit	Temperature	Continuous	Not applicable	
Calciner	Temperature	Continuous	Not applicable	
Not specified	Fuel rates(including SFs when being used		Not applicable	
A8 [Point A8 on drawing number 401.00-11-0016-P.00]	Temperature, pressure, oxygen content and water vapour content	Continuous	As described in the application	
Kiln exhaust [Close to the Combustion Chamber inner wall]	Temperature	Continuous	Traceable to National Standards	

Table S4.8 Waste sampling and analysis

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Kiln 4 cement kiln dust for disposal	Metals - Sb, As, Cd, Cr(VI), Cu, Pb, Hg, Ni, Se & Sn	6 monthly	As agreed	
	Halides - Chloride, Bromide, Fluoride	6 monthly	As agreed	
	Sulphate	6 monthly	As agreed	
	Free Lime	6 monthly	As agreed	
	pH	6 monthly	As agreed	

Table S4.9 Groundwater concentration limits and monitoring requirements					
Monitoring point reference	**Parameter**	**Limit (including unit)**	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
GA01, GA02, GA03, GA05, GA06 and GA07 identified on drawing HRA1, revision A dated 10.08.05 and other monitoring points to be agreed in writing	Cadmium	0.0004 mg/l	Spot Sample	Quarterly	As per Variation Application, Volume 3, Appendix 1
GA01, GA02, GA03, GA05, GA06 and GA07 identified on drawing HRA1, revision A dated 10.08.05 and other monitoring points to be agreed in writing	Copper	2.0 mg/l	Spot Sample	Quarterly	As per Variation Application, Volume 3, Appendix 1
GA01, GA02, GA03, GA05, GA06 and GA07 identified on drawing HRA1, revision A dated 10.08.05 and other monitoring points to be agreed in writing	Lead	0.01 mg/l	Spot Sample	Quarterly	As per Variation Application, Volume 3, Appendix 1
GA01, GA02, GA03, GA05, GA06 and GA07 identified on drawing HRA1, revision A dated 10.08.05 and other monitoring points to be agreed in writing	Potassium	12.0 mg/l	Spot Sample	Quarterly	As per Variation Application, Volume 3, Appendix 1 and the Schedule 7 responses of 23 September 2005, answer to question A66, and 3 August 2006, answers to questions B21 and B23.
GA01, GA02, GA03, GA05, GA06 and GA07 identified on drawing HRA1, revision A dated 10.08.05 and other monitoring points to be agreed in writing	Selenium	0.01 mg/l	Spot Sample	Quarterly	As per Variation Application, Volume 3, Appendix 1

Table S4.10 Landfill gas in external monitoring boreholes – limits and monitoring requirements

Monitoring point Ref. /description	Parameter	Limit (including units) *	Monitoring frequency	Monitoring standard or method
GA01, GA02, GA03, GA05, GA06 and GA07 identified on drawing HRA1, revision A dated 10.08.05.	Methane	To be agreed	Two Monthly	As per Variation Application, Volume 3, Appendix 4 and the Schedule 7 response of 23 September 2005, answer to question A79
	Carbon Dioxide	To be agreed		
	Oxygen	no limit		
	Atmospheric pressure	no limit		
	Differential Pressure	no limit		
	Temperature	no limit		
	Meteorological data	no limit		

Table S4.11 Landfill gas – other monitoring requirements

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
In waste monitoring boreholes 1 to 5 as indicated on Plan ESID8	Methane	Two Monthly	As per Variation Application, Volume 3, Appendix 4 and the Schedule 7 response of 23 September 2005, answer to question A79	Assessment and compliance limits to be agreed in writing
	Carbon Dioxide	Two Monthly		
	Oxygen	Two Monthly		
	Carbon Monoxide	Two Monthly		
	Atmospheric pressure	Two Monthly		
	Differential pressure	Two Monthly		
	Temperature	Two Monthly		
	Meteorological Data	Two Monthly		

Table S4.12 Leachate– other monitoring requirements

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
LM1, LM2, LM3, LM4 and LM5 identified on Plan ESID7A , revision A dated 10.08.05 and other monitoring points to be agreed in writing	PH (pH units), EC (*u*S/cm), Alkalinity (OH^-) + (CO_3^{2-}), NH4-N, TOC, BOD, COD, Al, Ca, Cl, Fe, Mn, Mg, NO_3^-, NO_2^-, K, Na, SO_4^{2-}, Cd, Hg, As, Cr, Cu, Pb, Ni, Se and Zn	Quarterly	As per Variation Application, Volume 3, Appendix 2 and the Schedule 7 response of 23 September 2005, answer to question A81	Reporting units mg/l unless otherwise specified
LM1, LM2, LM3, LM4 and LM5 identified on Plan ESID7A , revision A dated 10.08.05 and other monitoring points to be agreed in writing	List I and II substances	Annually	In accordance with appendix 6, LFTGN01 Hydrogeological risk assessment for landfills, Environment Agency, March 2003	Any substances detected in the annual List I and II screen shall be incorporated into the monitoring regime for surface water and groundwater at a frequency agreed in writing with the Agency.

Table S4.13 Groundwater - other monitoring requirements				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
GA01, GA02, GA03, GA05, GA06 and GA07 identified on drawing HRA1, revision A dated 10.08.05 and other monitoring points to be agreed in writing	List I and II substances	Annually	In accordance with appendix 6, LFTGN01 Hydrogeological risk assessment for landfills, Environment Agency, March 2003	

Schedule 5 - Reporting

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

Table S5.1 Reporting of monitoring data

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air Particulates	A3, A4, A5, A6, A7 and A9	Every 12 months	01/01/08
Emissions to air Particulates, oxides of nitrogen as NO_2, SO_2, VOCs as TOC, carbon monoxide and hydrogen chloride	A8	Monthly	01/01/08
Emissions to air Hydrogen fluoride, cadmium and thallium and their compounds (total), mercury and its compounds, zinc and its compounds, Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total), dioxins / furans (I-TEQ) and (WHO-TEQ), dioxin like PCBs (WHO-TEQ), PAHs, Benzene and 1,3 Butadiene	A8	Every 6 months	01/01/08
Process monitoring Parameters as required by condition 3.6.1	A8	Every 6 months	01/01/08
Waste sampling and analysis Parameters as required by condition 3.6.1	Kiln 4 cement kiln dust for disposal	Every 6 months	01/01/08
Leachate levels As required by condition 3.6.1	LM1, LM2, LM3, LM4 and LM5 and other monitoring points to be agreed in writing	Every 3 months	01/01/08
Emissions to water Parameters as required by condition 3.6.1	W1	Every 3 months	01/01/08
Surface water Parameters as required by condition 3.6.1	SW1, SW2, SW3 and SW4	Every 3 months	01/01/08
Groundwater Parameters as required by condition 3.6.1 List I and II screen	GA01, GA02, GA03, GA05, GA06 and GA07 and other monitoring points to be agreed in writing	Every 3 Months Every 12 months	01/01/08
Ambient air monitoring Parameters as required by condition 3.6.1	Penyffordd and Penymynydd Bowling Club, Park Crescent, off Abbots Lane, Penyffordd, NGR SJ 302 612	Every 3 months	01/01/08
Landfill gas monitoring Parameters as required by condition 3.6.1	GA01, GA02, GA03, GA05, GA06, GA07 and in waste monitoring boreholes 1 to 5	Every 3 months	01/01/08
Other leachate monitoring Parameters as required by condition 3.6.1 List I and II Screen	LM1, LM2, LM3, LM4 and LM5 and other monitoring points to be agreed in writing	Every 3 months Every 12 months	01/01/08

Table S5.2: Annual production/treatment	
Leachate: **Disposed of off site;** **Disposed of to any onsite effluent treatment plant;** **Recirculated into the waste mass.**	**Cubic metres/year**
Surface water and/ or groundwater (from the landfill area): **Disposed of off site;** **Disposed of to any onsite effluent treatment plant.**	**Cubic metres/year**
Cement	**Tonnes/year**

Table S5.3 Performance Parameters			
Parameter	**Frequency of assessment**	**Annual total**	**Unit**
Total substitute fuels burned	Annually		Tonnes
Total hazardous substitute fuels burned	Annually		Tonnes
Potable water used	Annually		Cubic metres
Non potable water uses	Annually		Cubic metres

Table S5.4 Reporting Forms		
Media/parameter	**Reporting Format**	**Date of Form**
Leachate	From leachate 1 or other reporting format to be agreed in writing with the Agency	
Air	Forms M/A5, M/A6 and M/A7 or other reporting format to be agreed in writing with the Agency	
Controlled water	Form M/W1 or other reporting format to be agreed in writing with the Agency	
Groundwater	Form Groundwater 1 or other reporting format to be agreed in writing with the Agency	
Sewer	Form Sewer 1 or other reporting format to be agreed in writing with the Agency	
Landfill gas	Form LFG 1 or other reporting format to be agreed in writing with the Agency	
Waste Return	Waste Return Form WMS1	
Waste sampling and analysis	Form M/WA1 or other reporting format to be agreed in writing with the Agency	
Landfill topographical surveys and interpretation	Reporting format to be agreed in writing with the Agency	
Water usage	Form water usage1 or other form as agreed in writing by the Agency	
Other performance indicators	Form performance 1 or other form as agreed in writing by the Agency	

Schedule 6 - Notification

This page outlines the information that the operator must provide.

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

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

Part A

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

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or fugitive emission which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and Time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit

Parameter	Notification period
Carbon Dioxide in external boreholes GA01 to 3 and GA05 to 7.	48 hours
Leachate level limit	5 working days

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

Part B to be supplied as soon as practicable

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

Part C

Permit Number	
Name of operator	
Location of installation	

For multi-line plants, indicate which line(s) was (were) subject to abnormal operation.	
Time at which abnormal operation commenced	
Time at which abnormal operation ceased	
Duration of this incidence of abnormal operation	
Cumulative abnormal operation duration in current year (at end of present incidence)	
Reasons for abnormal operation	
How did the abnormal operation end? (e.g. plant repaired, reaching maximum permitted duration, initiation of shutdown, etc.)	
Where the abnormal operation was caused by the failure of the particulate, CO or TOC CEM, attach a copy of the alternate monitoring data which was used to demonstrate compliance with the abnormal operation emission limit values.	

Where abatement plant has failed, give the half-hourly average emissions for pollutants of relevance during the abnormal operation in the rows below								
Pollutant	1st ½ hour	2nd ½ hour	3rd ½ hour	4th ½ hour	5th ½ hour	6th ½ hour	7th ½ hour	8th ½ hour

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of CASTLE CEMENT LIMITED

Schedule 7 - Interpretation

"abatement equipment" means that equipment dedicated to the removal of polluting substances from releases from the installation to air or water media.

"abnormal operation" means any technically unavoidable stoppages, disturbances, or failures of the abatement plant or the measurement devices [other than continuous emission monitors for releases to air of particulates, TOC and/or CO], during which the concentrations in the discharges into air and the purified waste water of the regulated substances may exceed the normal emission limit values

"accident" means an accident that may result in pollution.

"annually" means once every year.

"APC residues" means air pollution control residues

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

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

"Background concentration" means such concentration of that substance as is present in:

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

"bi-annual" means twice per year with at least five months between tests;

"CEM" Continuous emission monitor

"CEN" means Comïnité Européen de Normalisation

"Commissioning" relates to the period after construction has been completed or when a modification has been made to the plant or the raw materials when the Permitted Installation process is being tested and modified to operate according to its design;

"Decommissioned" means permanently de-activated;

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

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

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

"daily average" for releases of substances to air means the average of half-hourly averages over a calendar day during normal operation. Where any of abnormal operation, start-up or shut-down occur during the day in such a way that there are less than 43 half-hourly averages recorded during normal operation, no daily average shall be recorded for that day.

"dioxin and furans" means polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans.

"emissions to land", includes emissions to groundwater.

"fugitive emission" means an emission to air, water or land from the activities which is not controlled by an emission or background concentration limit.

"groundwater" means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

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

"Group III metals" means antimony (Sb), arsenic (As), chromium (Cr), cobalt (Co), copper (Cu), lead (Pb),

manganese (Mn), nickel (Ni), tin (Sn) and vanadium (V)
"H1" means Agency horizontal guidance note H1 "Environmental Assessment and Appraisal of BAT"
"H3" means Agency horizontal guidance note H3 "Noise Guidance"
"IMS" means the site Integrated Management System, which replaces the site Safety Health and Environment System ("SHEMS")
"incineration line" means all of the incineration equipment related to a common discharge to air location.
"infectious clinical waste" means clinical waste incorporating substances containing viable micro-organisms or their toxins which are known or reliably believed to cause disease in man or other living organisms
"ISO" *means International Standards Organisation.*
"Kiln 4" means the new kiln 4, including the calciner and pre-heater with all directly associated activities.
"$L_{Aeq,T}$" means the equivalent continuous A-weighted sound pressure level in dB determined over time period, T.
"Landfill Infrastructure" means any specified element of the:

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

within the site.
"Landfill Regulations" means the Landfill (England and Wales) Regulations SI 2002 No. 1559, and words and expressions used in this permit which are also used in the Regulations shall have the same meanings as in those Regulations.
"land protection guidance", means Agency guidance "H7 - Guidance on the protection of land under the PPC Regime: application site report and site protection monitoring programme".
"Liquids" means any liquid other than leachate within the engineered landfill containment system.
"LFTGN 05" means Environment Agency Guidance for monitoring enclosed landfill gas flares, September 2004.
"LFTGN 08" means Environment Agency Guidance for monitoring landfill gas engines, September 2004.
"LOI" means loss on ignition a technique used to determine the combustible material by heating the ash residue to a high temperature
"MCERTS" means the Environment Agency's Monitoring Certification Scheme.
"New Cell" means any new cell, part of a cell or other similar new area of the site where waste deposit is to commence after issue of this permit and can comprise:

- groundwater under-drainage system;
- permanent geophysical leak location system;
- leak detection layer;
- sub-grade;
- barriers;
- liners;
- leachate collection system;
- leachate abstraction system;
- separation bund/layer;
- cell or area surface water drainage system;
- side wall subgrade and containment systems;

for the New Cell.
"No impact" means that the change made to the construction process will not alter the agreed design criteria, specification or performance.
"Monitoring" includes the taking and analysis of samples, instrumental measurements (periodic and continual), calibrations, examinations, tests and surveys.
"notify without delay" and "notified without delay" means that a telephone call can be used, whereas all other reports and notifications must be supplied in writing, either electronically or on paper.
"PAH" means Poly-cyclic aromatic hydrocarbon, and comprises Anthanthrene, Benzo[a]anthracene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[b]naph(2,1-d)thiophene, Benzo[c]phenanthrene, Benzo[ghi]perylene, Benzo[a]pyrene, Cholanthrene, Chrysene, Cyclopenta[c,d]pyrene, Dibenzo[ah]anthracene, Dibenzo[a,i]pyrene Fluoranthene, Indo[1,2,3-cd]pyrene, Naphthalene
"PCB" means Polychlorinated Biphenyl. Dioxin-like PCBs are the non-ortho and mono-ortho PCBs listed in condition 6.1.5
"Permitted Installation" means the activities and the limits to those activities described in Table 1.1.1 of this Permit.
"PPC Regulations" means the Pollution, Prevention and Control (England and Wales) Regulations SI 2000 No.1973 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.
"quarter" means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

"quarterly" for reporting/sampling means after/during each 3 month period, January to March; April to June; July to September and October to December and, when sampling, with at least 2 months between each sampling date.
"Release point" followed by the letter A, W, E or S means respectively a point shown on a map or plan forming part of the Application for the release from the Permitted Installation into the air, into controlled waters, into an on-site effluent treatment plant or into a sewer.
"relevant person" and "relevant conviction" shall have the meanings given to them in the Environmental Protection Act 1990
"Review of the Hydrogeological Risk Assessment" means a written review of the hydrogeological risk assessment included in the Application, together with any other parts of the Application that addressed the requirements of the Groundwater Regulations. The review shall assess whether the activities of disposal or tipping for the purpose of disposal of waste authorised by the permit continue to meet the requirements of the Groundwater Regulations
"SFP" means the Agency's Substitute Fuels Protocol for Use on Cement and Lime Kilns
"site protection and monitoring programme" means a document which meets the requirements for site protection and monitoring programmes described in the Land Protection Guidance.
"Staff" includes employees, directors or other officers of the Operator, and any other person under the Operator's direct or indirect control, including contractors.
"Substances prescribed for water" means those substances mentioned in paragraph 13 of Part 2 of Schedule 1 to the PPC Regulations.
"Substitute Fuel" "SF" means a fuel other than "conventional fuels". Conventional fuels are coal, petroleum coke, natural gas or oil.
"TOC" means Total Organic Carbon. In respect of releases to air, this means the gaseous and vaporous organic substances, expressed as TOC. In respect of Bottom Ash, this means the total carbon content of all organic species present in the ash (excluding carbon in elemental form).
"Waste Incineration Directive" means Directive 2000/76/EC on the incineration of waste (O.J. L 332, 28.12.2000)
"technically competent management" and *"technical competence"* shall have the meanings given to them in the Environmental Protection Act 1990.
"waste code" means the six digit code referable to a type of waste in accordance with the List of Wastes (England)Regulations 2005, or List of Wastes (Wales) Regulations 2005, as appropriate, and in relation to hazardous waste, includes the asterisk.
"WHO" means the World Health Organisation
"year" means calendar year ending 31 December.

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

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means the concentration in dry air at a temperature of 273K, at a pressure of 101.3kPa and with an oxygen content of 10% dry.

For dioxins/furans and dioxin-like PCBs the determination of the toxic equivalence concentration (I-TEQ, & WHO-TEQ for dioxins/furans, WHO-TEQ for dioxin-like PCBs) stated as a release limit and/ or reporting requirement, the mass concentrations of the following congeners have to be multiplied with their respective toxic equivalence factors before summing.

TEF schemes for dioxins and furans				
Congener	*I-TEF(1990)*	*WHO-TEF (1997/8)*		
		Humans / Mammals	*Fish*	*Birds*
Dioxins				
2,3,7,8-TCDD	*1*	*1*	*1*	*1*
1,2,3,7,8-PeCDD	*0.5*	*1*	*1*	*1*
1,2,3,4,7,8-HxCDD	*0.1*	*0.1*	*0.5*	*0.05*
1,2,3,6,7,8-HxCDD	*0.1*	*0.1*	*0.01*	*0.01*
1,2,3,7,8,9-HxCDD	*0.1*	*0.1*	*0.01*	*0.1*
1,2,3,4,6,7,8-HpCDD	*0.01*	*0.01*	*0.001*	*<0.001*
OCDD	*0.001*	*0.0001*	-	-

Furans				
2,3,7,8-TCDF	*0.1*	*0.1*	*0.05*	*1*
1,2,3,7,8-PeCDF	*0.05*	*0.05*	*0.05*	*0.1*
2,3,4,7,8-PeCDF	*0.5*	*0.5*	*0.5*	*1*
1,2,3,4,7,8-HxCDF	*0.1*	*0.1*	*0.1*	*0.1*
1,2,3,7,8,9-HxCDF	*0.1*	*0.1*	*0.1*	*0.1*
1,2,3,6,7,8-HxCDF	*0.1*	*0.1*	*0.1*	*0.1*
2,3,4,6,7,8-HxCDF	*0.1*	*0.1*	*0.1*	*0.1*
1,2,3,4,6,7,8 HpCDF	*0.01*	*0.01*	*0.01*	*0.01*
1,2,3,4,7,8,9-HpCDF	*0.01*	*0.01*	*0.01*	*0.01*
OCDF	*0.001*	*0.0001*	*0.0001*	*0.0001*

TEF schemes for dioxin-like PCBs			
Congener	***WHO-TEF (1997/8)***		
	Humans / mammals	***Fish***	***Birds***
Non-ortho PCBs			
3,4,4',5-TCB (81)	*0.0001*	*0.0005*	*0.1*
3,3',4,4'-TCB (77)	*0.0001*	*0.0001*	*0.05*
3,3',4,4',5 - PeCB (126)	*0.1*	*0.005*	*0.1*
3,3',4,4',5,5'-HxCB(169)	*0.01*	*0.00005*	*0.001*
Mono-ortho PCBs			
2,3,3',4,4'-PeCB (105)	*0.0001*	*<0.000005*	*0.0001*
2,3,4,4',5-PeCB (114)	*0.0005*	*<0.000005*	*0.0001*
2,3',4,4',5-PeCB (118)	*0.0001*	*<0.000005*	*0.00001*
2',3,4,4',5-PeCB (123)	*0.0001*	*<0.000005*	*0.00001*
2,3,3',4,4',5-HxCB (156)	*0.0005*	*<0.000005*	*0.0001*
2,3,3',4,4',5'-HxCB (157)	*0.0005*	*<0.000005*	*0.0001*
2,3',4,4',5,5'-HxCB (167)	*0.00001*	*<0.000005*	*0.00001*
2,3,3',4,4',5,5'-HpCB (189)	*0.0001*	*<0.000005*	*0.00001*

END OF PERMIT