



**ENVIRONMENT
AGENCY**

Permit with introductory note

Pollution Prevention and Control (England & Wales) Regulations 2000

St Asaph Lens Coating

**Qioptiq Limited
Glascoed Road
St Asaph
Denbighshire
LL17 0LL**

**Permit number
JP3536LS**

St Asaph Lens Coating Permit Number JP3536LS

Introductory note

This introductory note does not form a part of the permit

The following Permit is issued under Regulation 10 of the Pollution Prevention and Control (England and Wales) Regulations 2000 (S.I.2000 No.1973), as amended, ("the PPC Regulations") to operate an installation carrying out activities covered by the following description in of the PPC Regulations, to the extent authorised by the Permit:

Section 4.2 A(1)(a)(v) Producing inorganic chemicals such as non-metals, metal oxides, metal carbonyls or other inorganic compounds such as calcium carbide, silicon, silicon carbide, titanium dioxide.

A non-technical description of the installation is given in the Application, but the main features of the installation are as follows:

The facility coats substrates with a boron phosphide [BP] coating. The finished products are used for airborne naval and land-based electro-optic systems. This process uses two high purity toxic gases – Phosphine and Diborane – which are reacted together inside one of four deposition chambers containing the substrate. The gases are reacted together in the vapour phase by plasma assistance, under partial vacuum. This deposits a solid amorphous metal phosphide film on to the substrate. Inert argon is introduced before and after the deposit to prepare and clean the substrate and subsequent deposit.

The unreacted gases are removed in the presence of excess Nitrogen into one of a number of gas scrubbing systems. The output from each of these scrubbing systems is discharged to atmosphere via a tall stack.

The installation produces less than 0.5 tonnes of hazardous waste per annum.

There are no water discharges from this process.

There are no significant environmental impacts from this installation.

Status Log of the permit

Detail	Date	Response Date
Application JP3536LS	Duly made 27/07/06	
Request for Extension for determination	15/11/06	
Permit determined	27/03/07	

Other existing Licences/Authorisations/Registrations relating to this site

Holder	Reference Number	Date of Issue
Cloptiq Ltd	BX4666IZ	04-Aug-2005
Cloptiq Ltd	DCC/04/EPA(A)	03-Dec-1999

End of Introductory Note

Permit

**Pollution Prevention and Control
(England and Wales) Regulations 2000**

Permit

Permit number
JP3536LS

The Environment Agency (the Agency) in exercise of its powers under Regulation 10 of the
Pollution Prevention and Control (England and Wales) Regulations 2000 (SI 2000 No 1973) hereby
authorises
Qloptiq Limited

whose registered office is
**Glascoed Road
St Asaph
Denbighshire
LL17 0LL**

company registration number **876004**

to operate an installation at
**Glascoed Road
St. Asaph
Denbighshire
LL17 0SS**

to the extent authorised by and subject to the conditions of this permit.

Signed

Date

	27/03/2007
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M J Peacock

Authorised to sign on behalf of the Agency

Conditions

1 Management

1.1 General management

1.1.1 The activities shall be managed and operated:

- (a) in accordance with a management system, which identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents and non-conformances and those drawn to the attention of the operator as a result of complaints; and
- (b) by sufficient persons who are competent in respect of the responsibilities to be undertaken by them in connection with the operation of the activities.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

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

1.2 Accident management plan

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.

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.

2.4 Off-site conditions

There are no off-site conditions under this section.

2.5 Improvement programme

There is no improvement programme in this permit.

2.6 Pre-operational conditions

There are no pre-operational conditions in this permit.

2.7 Closure and decommissioning

- 2.7.1 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.
- 2.7.2 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 to a satisfactory state.
- 2.7.3 The operator shall carry out and record a review of the site closure plan at least every 4 years.
- 2.7.4 The site closure plan (or relevant part thereof) shall be implemented on final cessation or decommissioning of the activities or part thereof.

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, S4.2 and S4.3.
- 3.1.2 The limits given in schedule 4 shall not be exceeded.

3.2 Transfers off-site

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

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.

3.4 Odour

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

3.5 Noise and vibration

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

3.6 Monitoring

- 3.6.1 The operator shall, unless otherwise agreed in writing by the Agency, undertake the monitoring specified in the following tables in schedule 4 to this permit:
- (a) point source emissions specified in tables S4.1, S4.2 and S4.3;
- 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 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme specified in condition 3.6.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate) unless otherwise agreed in writing by the Agency.
- 3.6.4 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, S4.2 and S4.3 unless otherwise specified in that schedule.

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
- (i) be retained, unless otherwise agreed in writing by the Agency, for at least 6 years from the date when the records were made.
- 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 the 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;
 - (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; and
 - (e) details of any contamination or decontamination of the site which has occurred.
- 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** 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.
- 4.2.4** All reports and notifications required by the permit shall be sent to the Agency using the contact details supplied in writing by the Agency

4.3 Notifications

- 4.3.1** The Agency shall be notified without delay following the detection of:
- (a) any malfunction, breakdown or failure of equipment or techniques, accident, or fugitive emission which has caused, is causing or may cause significant pollution;
 - (b) the breach of a limit specified in the permit;
 - (c) any significant adverse environmental effects.
- 4.3.2** Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 6 to this permit within the time period specified in that schedule.
- 4.3.3** Prior written notification shall be given to the Agency of the following events and in the specified timescales:

- (a) as soon as practicable prior to the permanent cessation of any of the activities;
 - (b) cessation of operation of part or all of the activities for a period likely to exceed 1 year; and
 - (c) resumption of the operation of part or all of the activities after a cessation notified under (b) above.
- 4.3.4 The Agency shall be given at least 14 days notice before implementation of any part of the site closure plan.
- 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.
- 4.3.9 The Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:
 - (a) any change in the operator's trading name, registered name or registered office address;
 - (b) any change to particulars of the operator's ultimate holding company (including details of an ultimate holding company where an operator has become a subsidiary); and
 - (c) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

4.4 Interpretation

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

Schedule 1 - Operations

Table S1.1 activities

Activity listed in Schedule 1 of the PPC Regulations	Description of specified activity	Limits of specified activity
S4.2 A(1)(a)(v)	Applying Boron Phosphide coating onto substrates	From the storage of raw materials to final product inspection. Including the application of the Boron Phosphide coating on the substrate, within either one of two, or both vacuum deposition chamber. The energy for the reaction to take place is derived from a low power Radio Frequency Generator that produces a Plasma, which is a function of the process gases entering the deposition chamber. Results in the deposition of the Boron Phosphide on to the surface of the substrate in the form of a solid, amorphous film
Directly Associated Activity		
Cleaning of deposition chamber internals	Associated Process	The removal of the deposited Boron Phosphide coating, if out of specification. Undertaken in a microwave oven under vacuum, and through which a mixture of carbon tetrafluoride (CF ₄) and Oxygen gases is passed.
Gas scrubbing system	Associated Process	Extraction and abatement of process gases via a dry scrubber abatement system
Removal of BP coating in a microwave oven	Associated Process	Cleaning of out of specification materials, extraction of gases via the extraction system.
Spraying of Aquadag	Associated Process	Limited to application of material within the dedicated extracted enclosure

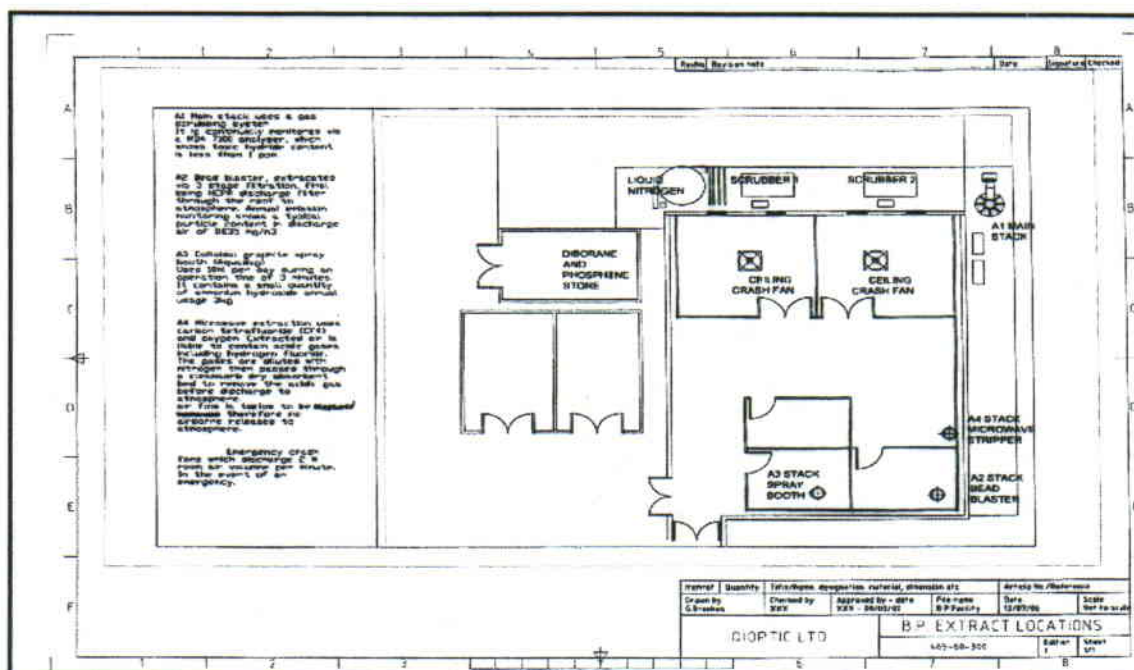
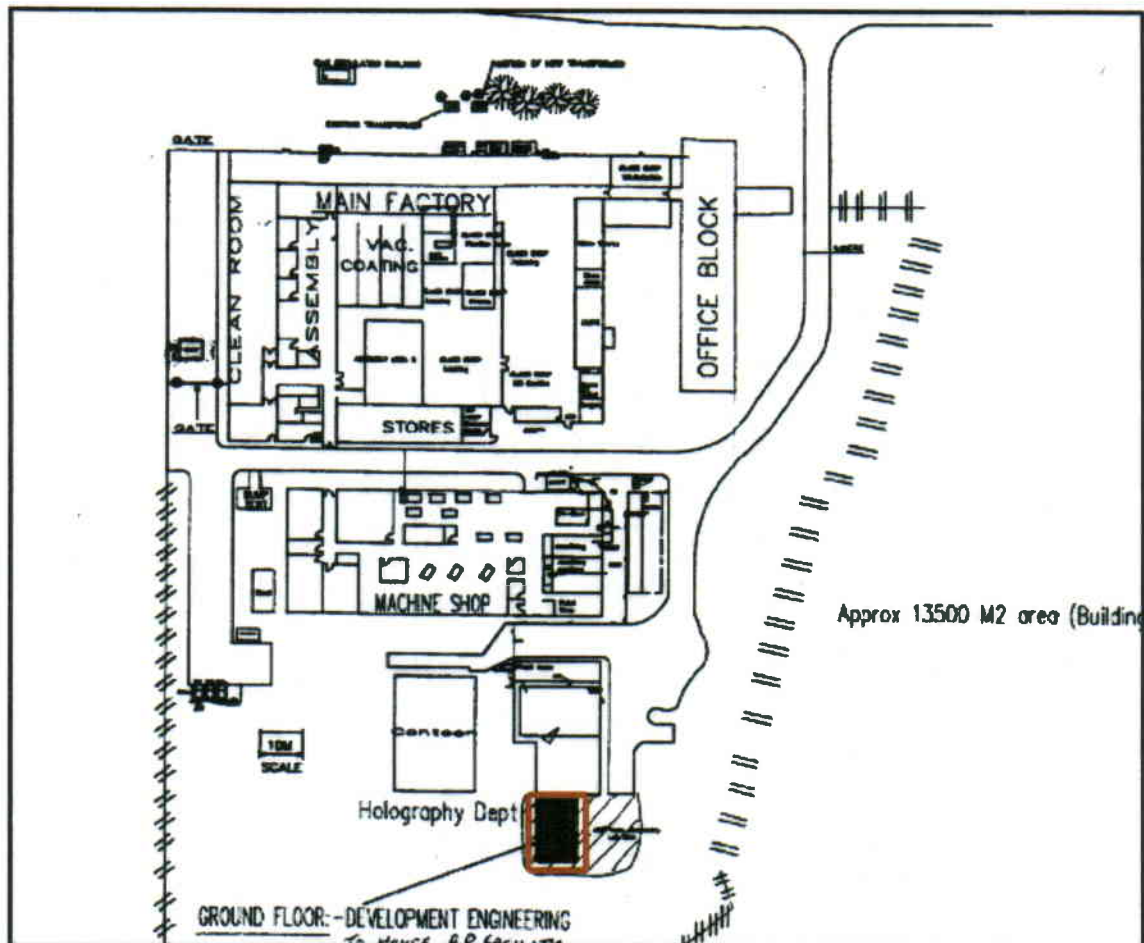
Table S1.2 Operating techniques

Description	Parts	Date Received
Application	The response to section 2.1 (excluding 2.1.2, 2.1.3 and 2.1.5) and 2.2 in the Application.	26/07/06

Table S1.3 Improvement programme requirements

Reference	Requirement	Date
-	No improvement conditions required	

Schedule 2 - Site plan



Schedule 3 - Waste types, raw materials and fuels

Table S3.1 Raw materials and fuels	
Raw materials and fuel description	Specification
-	

Schedule 4 – Emissions and monitoring

Table S4.1 Point source emissions to air – emission limits and monitoring requirements

Emission point ref. & location	Parameter	Source	Limit (Including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A1 [Point A1 on site plan in Schedule 2]	Phophane and Diobrane	Gas Scrubber serving the deposition chambers	No limit set	-	-	Permanent sampling access not required
A2 [Point A2 on site plan in schedule 2]	Particulates	Abatement plant (including HEPA filters) serving deposition chamber	No limit set	-	-	Permanent sampling access not required
A3 [Point A3 on site plan in schedule 2]	Ammonia	Aquadag application enclosure	No Limit Set	-	-	Permanent sampling access not required
A4 – Microwave Oven Stack	Acid gases including Hydrogen Fluoride	Microwave Oven, used for cleaning of deposited Boron Phosphide coating if quality of substrate coverage is unacceptable	No limit set	-	-	Permanent sampling access not required

Table S4.2 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
-						

Table S4.3 Point source emissions to sewer, effluent treatment plant or other transfers off-site – emission limits and monitoring requirements

Emission point ref. & location	Parameter	Source	Limit (Incl. Unit)	Reference period	Monitoring frequency	Monitoring standard or method
-						

Schedule 5 - Reporting

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

Table S5.3 Performance parameters

Parameter	Frequency of assessment	Units
Compliance with the low impact installation criteria.	Annual	-

Table S5.4 Reporting forms

Media/parameter	Reporting format	Date of form
Compliance with Low Impact Installation criteria	L1	01/02/2007

Schedule 6 - Notification

These pages outline 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

(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 submitted as soon as practicable

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

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of Qloptiq Ltd.

Schedule 7 - Interpretation

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

"annually" means once every year.

"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.

"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.

"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".

"MCERTS" means the Environment Agency's Monitoring Certification Scheme.

"notify without delay" and *"notified without delay"* means that a telephone call can be used, whereas all

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:

- (a) in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or
- (b) in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content

END OF PERMIT