



ENVIRONMENT  
AGENCY

## Permit with introductory note

Pollution Prevention and Control (England & Wales) Regulations 2000

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South Humber Bank Power Station

Centrica SHB Limited  
South Humber Bank Power Station  
South Marsh Road  
Stallingborough  
North East Lincolnshire  
DN41 8BZ

Permit number

MP3235LY

# South Humber Bank Power Station Permit Number MP3235LY

## Introductory note

### ***This introductory note does not form a part of the permit***

The main features of the installation are as follows.

There are two operators and two processes at the installation. The primary purpose (operated by Centrica SHB Limited) is to operate a Combined Cycle Gas Turbine (CCGT) Power Station.

The secondary purpose (operated by National Grid Gas plc) is the addition of an odourising agent to the natural gas fed to the CCGTs.

The entire installation covers an area of around 200,000 m<sup>2</sup> in an area north west of Grimsby and east of Immingham in an area of flat farmland scheduled for industrial development. It is located immediately adjacent to the Humber Estuary (an SSSI and listed European Site to the North east) and 1.5 kilometres from the nearest house (to the east). There are emissions to air and to water from the installation.

The activities covered by this permit are owned by Centrica plc and operated by Centrica SHB Limited. It has a nominal output of 1260 MW of electricity from 2 combined cycle gas turbine units and can operate to a base load or demand following regime.

The first module consists of 3 gas turbines, 3 associated electricity generators, 3 heat recovery steam generators, steam turbine and associated electricity generator. The second module consists of 2 gas turbines, 2 associated electricity generators, 2 heat recovery steam generators, steam turbine and associated electricity generator.

Boiler feed water is supplied from towns water via 2 demineralisation plants (1 on each module). Water from the deepwater channel in the estuary is used for direct ("once through") cooling and returned to the deepwater channel. Apart from the inlet and outlet culverts/ponds the 2 modules have separate cooling water systems.

A gas oil fired auxiliary boiler provides steam during start-up of the first module following a complete shutdown. The auxiliary boiler and gas turbine use low NOX technology to minimise releases at source.

Administrative support, raw material storage, warehousing and limited engineering support are all located on the installation to support operations.

#### Status Log of the permit

Detail	Date	Response Date
Application MP3235LY	Duly made 22/03/06	
Additional Information Requested (Site Visit)	06/07/06	
Additional Information Received		04/08/06
Permit determined	12/12/06	

**Other PPC permits relating to this installation**

<b>Operator</b>	<b>Permit Number</b>	<b>Date of Issue</b>
National Grid Gas PLC	QP3535LG	12/12/06

**Superseded or Partially Superseded Licences/Authorisations/Consents relating to this installation**

<b>Holder</b>	<b>Reference Number</b>	<b>Date of Issue</b>	<b>Fully or Partially Superseded</b>
Centrica SHB Limited	AH4195	31/08/93	Fully superseded
National Grid Gas plc	EPA/JAT/ONE/01	26/08/98	Fully superseded

**Other existing Licences/Authorisations/Registrations relating to this site**

<b>Holder</b>	<b>Reference Number</b>	<b>Date of issue</b>
Humberland Ltd	4/29/9/5/135	29/09/95

End of Introductory Note

**Permit**

Pollution Prevention and Control  
(England and Wales) Regulations 2000

## Permit

Permit number

**MP3235LY**

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

**Centrica SHB Limited** ("the operator"),

whose registered office is


**Centrica SHB Limited**  
**Millstream**  
**Maidenhead road**  
**Windsor**  
**Berkshire**  
**SL4 5GD**

company registration number 02571241

to operate part of an installation at

**Centrica SHB Limited**  
**South Humber Bank Power Station**  
**South marsh Road**  
**Stallingborough**  
**North East Lincolnshire**  
**DN41 8BZ**

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

Signed	Date
	12 December 2006

Phil Reynolds

Regulatory Team Leader (PIR Permitting)

Strategic Permitting Group-Nottingham

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 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 Where the operator notifies the Agency under condition 4.3.1 (a) or 4.3.1 (c), the operator shall also notify without delay the other operator(s) of the installation of the same information.

# **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, which is within the area edged in green on the site plan that represents the extent of the installation covered by this permit and that of the other operator of the installation.

## **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**

- 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 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.

## **2.8 Site protection and monitoring programme**

- 2.8.1 The operator shall, within 2 months of the issue of this permit, submit a site protection and monitoring programme.
- 2.8.2 The operator shall implement and maintain the site protection and monitoring programme and shall carry out and record a review of it at least every 4 years.

# **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.
- 3.6.5 Within 6 months of the issue of this permit (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 Monitoring for the purposes of the Large Combustion Plant Directive**

- 3.7.1 All LCP monitoring required by this permit shall be carried out in accordance with the provisions of Annex VIII of the Large Combustion Plant Directive.
- 3.7.2 If the monitoring results for more than 10 days a year are invalidated within the meaning set out in Schedule 4, the Operator shall:
- (a) within 28 days of becoming aware of this fact, review the causes of the invalidations and submit to the Agency for approval, proposals for measures to improve the reliability of the continuous measurement systems, including a timetable for the implementation of those measures; and
  - (b) implement the approved measures.
- 3.7.3 Continuous measurement systems on emission points from the LCP shall be subject to quality control by means of parallel measurements with reference methods at least once every calendar year.
- 3.7.4 Unless otherwise agreed in writing by the Agency in accordance with condition 3.7.5 below, the operator shall carry out the methods, including the reference measurement methods, to use and calibrate continuous measurement systems in accordance with the appropriate CEN standards.
- 3.7.5 If CEN standards are not available, ISO standards, national or international standards which will ensure the provision of data of an equivalent scientific quality shall be used, as agreed in writing with the Agency.
- 3.7.6 Where required by a condition of this permit to check the measurement equipment the operator shall submit a report to the Agency in writing, within 28 days of the completion of the check.

## **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 site protection and monitoring programme.
- 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 installation 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 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 28 days 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.
- 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.
- 4.3.6 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.
- 4.3.7 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.
- 4.3.8 From 1 January 2008 the Operator shall inform the Agency in writing of the closure of any LCP within 28 days of the date of closure.

## **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 1.1 A(1) (a) : Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more	5 off gas turbines (491 MWth input each)	From receipt of gas through to discharge of exhaust gases and generation of electricity
Section 1.1 B (a) : Burning any fuel, other than a fuel mentioned in paragraph (b) of Part A(1) of this Section, in a boiler or furnace or a gas turbine or compression ignition engine with, in the case of any of these appliances, a net rated thermal input of 20 megawatts or more but less than a rated thermal input of 50 megawatts.	1 off gas oil boiler (42 MWth input)	From receipt of gas oil through to discharge of exhaust gases and export of steam to the steam systems.
<b>Directly Associated Activity</b>		
Steam system	5 heat recovery steam generators, 2 steam turbines, associated electrical generators, condensers and feed water systems	Receipt of water from water treatment, all steam pipe-work, condensate pipe-work, associated pumps and vents
Water treatment	Demineralisation of water	Receipt of water and other raw materials through to export to boiler feed system and drains.
Cooling water system	Single pass direct cooled system	From inlet ports to discharge ports.
Raw materials handling & storage	Receipt storage and handling of water treatment chemicals, fuel & lubricating oils, turbine cleaning chemicals and all other raw materials.	From receipt of raw materials to their point of use.
Waste handling & storage		From generation to the removal from the installation.

**Table S1.2 Operating techniques**

Description	Parts	Date Received
Application	The response to section 2.1 and 2.2 excluding Appendix A (Application site Report, February 2006) in the Application.	22/03/06
Receipt of additional information to the application	Revised Application Site Report, July 2006.	04/08/06

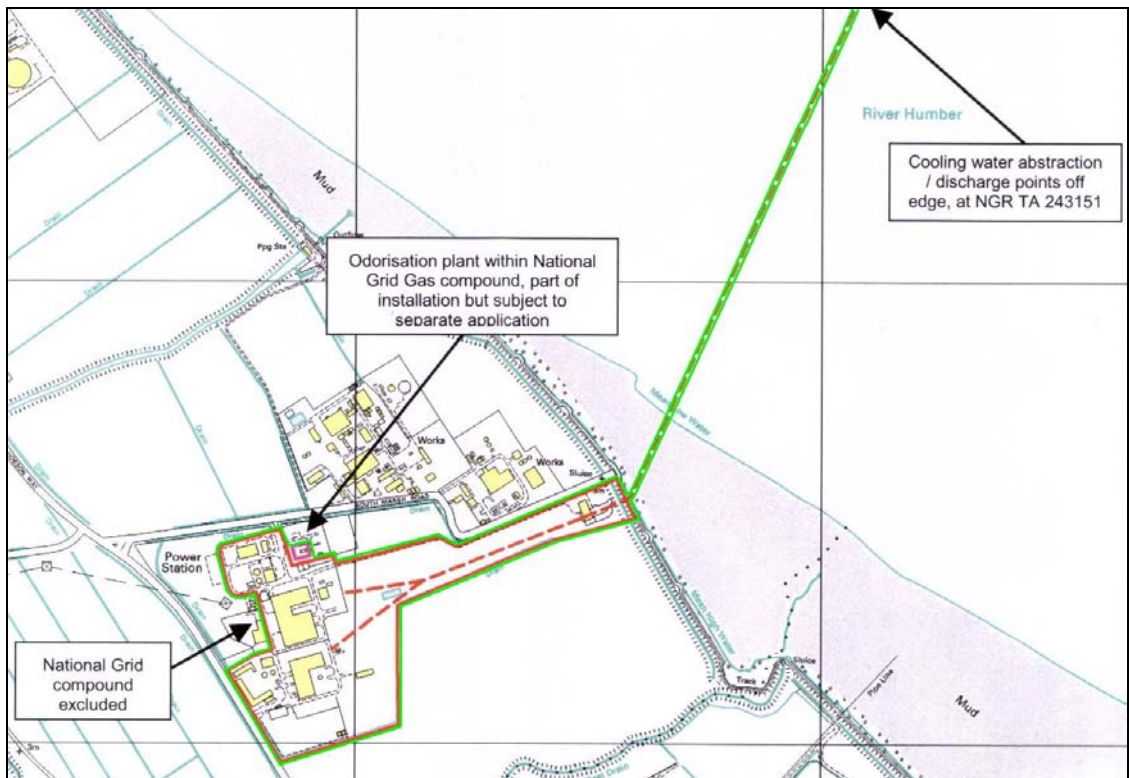
**Table S1.3 Improvement programme requirements**

Reference	Requirement	Date
IP1	A written procedure shall be submitted to the agency detailing the measures to be used so that monitoring equipment, personnel and organisations employed for the emissions monitoring programme shall have either MCERTS certification or accreditation in accordance with condition 3.6.3. The notification requirements of condition 2.5.2 shall be deemed to have been complied with on submission of the procedure.  The procedure shall be implemented by the operator from the date of approval in writing by the Agency	01/11/07
IP2	A procedure shall be submitted to the Agency for approval. The procedure shall outline how incidents are reviewed with specific reference to impact on the application site report and site protection and monitoring plan. The notification requirements of condition 2.5.2 shall be deemed to have been complied with on submission of the procedure.  The procedure shall be implemented by the operator from the date of approval in writing by the Agency	01/06/07
IP3	A written report shall be submitted to the Agency for approval. The report shall contain the results of the review of inspection procedures to ensure compliance with indicative BAT guidance in Section 2.2.9 of Technical Guidance Note "IPPC Sector Guidance Note Combustion Activities." Where appropriate the report will include dates for the revision of relevant procedures. The notification requirements of condition 2.5.2 shall be deemed to have been complied with on submission of the plan.  The plan shall be implemented by the operator from the date of approval by the Agency.	01/09/07
IP4	The Operator shall undertake a review of the BAT listed within the Combustion Sector TGN IPPC S1.01 Section 2 for Oxides of Nitrogen which will enable them to achieve the ELV given within the TGN for the release to air from the gas turbines. The review shall include, but not be limited to, all of the relevant techniques listed within the TGN, the reduction in the level of pollutants (for each option) and the costs of achieving the reduction (for each option). The report shall include a timetable to implement any proposed changes as appropriate.  The Operator shall implement the proposals as agreed in writing with the Environment Agency.	01/07/08
IP5	A written report shall be submitted to the Agency for approval. The report shall contain a Closure and decommissioning plan that is consistent with indicative BAT guidance in Section 2.11 of Technical Guidance Note "IPPC Sector Guidance Note Combustion Activities." The report will include evidence of relevant procedures to ensure that the plan is subject to review following incidents and at an appropriate frequency. The notification requirements of condition 2.5.2 shall be deemed to have been complied with on submission of the plan.  The plan shall be implemented by the operator from the date of approval by the Agency.	01/11/08

**Table S1.4 Pre-operational measures for future development**

Reference	Operation	Pre-operational measures
1	Dosing of cooling water system with biocide.	At least 4 weeks prior to commencing to dose the operator shall submit a request to commence for approval by the Agency. This request shall outline the techniques to be used to ensure compliance with the conditions outlined in Table S4.2.

## Schedule 2 - Site plan



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## Schedule 3 - Waste types, raw materials and fuels

**Table S3.1 Raw materials and fuels**

Raw materials and fuel description	Specification
Gas oil until 31/12/2007	Less than 0.2% w/w sulphur content
Gas oil from 01/01/2008	Less than 0.1% w/w sulphur content

## Schedule 4 – Emissions and monitoring

For the purposes of this Schedule, the following interpretations shall apply:

- For the continuous measurement systems fitted to the LCP release points defined in Table S4.1 the validated hourly and daily averages shall be determined from the measured valid hourly average values after having subtracted the value of the 95% confidence interval.
- The 95% confidence interval for nitrogen oxides of a single measured result shall be taken to be 20%.
- The 95% confidence interval for dust releases of a single measured result shall be taken to be 30%
- An invalid hourly average means an hourly average period invalidated due to malfunction of, or maintenance work being carried out on, the continuous measurement system. However, to allow some discretion for zero and span gas checking, or cleaning (by flushing), an hourly average period will count as valid as long as data has been accumulated for at least two thirds of the period (40 minutes). Such discretionary periods are not to exceed more than 5 in any one 24-hour period unless agreed in writing. Where plant may be operating for less than the 24-hour period, such discretionary periods are not to exceed more than one quarter of the overall valid hourly average periods unless agreed in writing.
- Any day, in which more than three hourly average values are invalid shall be invalidated.

**Table S4.1 Point source emissions to air from Gas Turbines**

Emission point ref. & location	Parameter	Source	Limit (including unit) <sup>[1]</sup>	Reference period	Monitoring frequency	Monitoring standard or method		
A1	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	GT13	80 mg/m <sup>3</sup>	Daily mean of validated hourly averages	Continuous	BS EN 14181		
	Sulphur Dioxide		No limit set				Calculation	
	Particulate Matter		No limit set				Calculation	
	Carbon Monoxide		100 mg/m <sup>3</sup>				Daily mean	Continuous
A2	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	GT11	80 mg/m <sup>3</sup>	Daily mean of validated hourly averages	Continuous	BS EN 14181		
	Sulphur Dioxide		No limit set				Calculation	
	Particulate Matter		No limit set				Calculation	
	Carbon Monoxide		100 mg/m <sup>3</sup>				Daily mean	Continuous
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	GT12	80 mg/m <sup>3</sup>	Daily mean of validated hourly averages	Continuous	BS EN 14181		
			Sulphur Dioxide				No limit set	Calculation
			Particulate Matter				No limit set	Calculation
			Carbon Monoxide				100 mg/m <sup>3</sup>	Daily mean
A3	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	GT21	80 mg/m <sup>3</sup>	Daily mean of validated hourly averages	Continuous	BS EN 14181		
	Sulphur Dioxide		No limit set				Calculation	
	Particulate Matter		No limit set				Calculation	
	Carbon Monoxide		100 mg/m <sup>3</sup>				Daily mean	Continuous
	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	GT22	80 mg/m <sup>3</sup>	Daily mean of validated hourly averages	Continuous	BS EN 14181		
			Sulphur Dioxide				No limit set	Calculation
			Particulate Matter				No limit set	Calculation
			Carbon Monoxide				100 mg/m <sup>3</sup>	Daily mean
A4	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	Auxiliary Boiler	300 mg/m <sup>3</sup> <sup>[2][3]</sup>			BS EN 14792		

**Table S4.1 Point source emissions to air from Gas Turbines**

Emission point ref. & location	Parameter	Source	Limit (including unit) <sup>[1]</sup>	Reference period	Monitoring frequency	Monitoring standard or method
	Sulphur Dioxide		No limit set <sup>[2] [3]</sup>			Calculation
	Particulate Matter		No limit set <sup>[2] [3]</sup>			
	Carbon Monoxide		150 mg/m <sup>3</sup> <sup>[2] [3]</sup>			
A5		Phase 1 emergency gas oil generator	No limit set			
A6		Phase 2 emergency gas oil generator	No limit set			
A7		Phase 1 gas oil back up firewater pump	No limit set			
A8		Phase 2 gas oil back up firewater pump	No limit set			
A9		GT13 fuel gas vent	No limit set			
A10		GT12 fuel gas vent	No limit set			
A11		GT11 fuel gas vent	No limit set			
A12		GT22 fuel gas vent	No limit set			
A13		GT21 fuel gas vent	No limit set			
A14		All steam vents	No limit set			
A15		Raw material storage tank vents.	No limit set			
A16		All building ventilation vents	No limit set			

- [1] These limits do not apply during start up or shutdown, for the gas turbines they do not apply: -
- For periods not exceeding 4 hours following restart of each gas turbine, however the hourly average concentration shall not exceed 3 times the hourly limit (“start-up”),
  - During recommissioning after maintenance overhauls
- [2] Auxiliary boiler operation is limited to 500 hours per calendar year.
- [3] Emissions monitoring required if auxiliary boiler operates continuously for more than 24 hours and subject to with a maximum of 1 test per 6-month period.

**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
W1	Flow	Cooling water with trivial contribution	2,376,000 m <sup>3</sup> /day	Day	Continuous	
			99,000 m <sup>3</sup> /hr	Hour	Continuous	
Dscharge to River Humber deep water canal.	pH	from water treatment plant and surface water.	5-9	Continuous	Continuous	
			Temperature	Δ < 8°C	Continuous	Continuous
			Δ < 15°C <sup>[1]</sup>	Continuous	Continuous	
	Total Oxidant (As Chlorine)		0.1 mg/l	To be agreed before dosing commences.		

[1] This is limited to 200 hours per calendar year; each period shall not exceed 12 hours and applies during the following activities:

- (a) Maintenance work on the cooling water pumps.
- (b) Repairs to leaks on the cooling water system.
- (c) Clearing blockages on the main screens.
- (d) Clearing of debris filters within the process.
- (e) Investigations to identify condenser tube leaks.
- (f) Running on steam by-pass following trips.
- (g) Recommissioning.
- (h) Other conditions agreed in writing with the Environment Agency.

**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
There are no releases to sewer						



## Schedule 5 - Reporting

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

<b>Table S5.1 Reporting of monitoring data</b>			
<b>Parameter</b>	<b>Emission or monitoring point/reference</b>	<b>Reporting period</b>	<b>Period begins</b>
Oxides of nitrogen Parameters as required by condition 3.6.1.	A1 (GT13), A2 (GT11 & GT12), A3 (GT21 & GT22)	Up to 31/12/06 Every 3 months	Permit issue date 01/01/07
	A4	Up to 31/12/06 Every 6 months	Permit issue date 01/01/07
Carbon Monoxide Parameters as required by condition 3.6.1.	A1 (GT13), A2 (GT11 & GT12), A3 (GT21 & GT22)	Up to 31/12/06 Every 3 months	Permit issue date 01/01/07
	A4	Up to 31/12/06 Every 6 months	Permit issue date 01/01/07
Sulphur Dioxide Parameters as required by condition 3.6.1.	A1 (GT13), A2 (GT11 & GT12), A3 (GT21 & GT22)	Up to 31/12/06 Every 3 months	Permit issue date 01/01/07
	A4	Up to 31/12/06 Every 6 months	Permit issue date 01/01/07
Particulate Matter (Dust) Parameters as required by condition 3.6.1.	A1 (GT13), A2 (GT11 & GT12), A3 (GT21 & GT22)	Up to 31/12/06 Every 3 months	Permit issue date 01/01/07
	A4	Up to 31/12/06 Every 6 months	Permit issue date 01/01/07
CEMs Invalidation Log Parameters as required by condition 3.6.1	A1 (GT13), A2 (GT11 & GT12), A3 (GT21 & GT22)	Up to 31/12/06 Every 12 months	Permit issue date 01/01/07
Annual Energy (Gas) Usage Parameters as required by condition 3.6.1	A1 (GT13), A2 (GT11 & GT12), A3 (GT21 & GT22)	Up to 31/12/06 Every 12 months	Permit issue date 01/01/07
Flow Parameters as required by condition 3.6.1	W1	Up to 31/12/06 Every 3 months	Permit issue date 01/01/07
pH Parameters as required by condition 3.6.1	W1	Up to 31/12/06 Every 3 months	Permit issue date 01/01/07
Temperature Parameters as required by condition 3.6.1	W1	Up to 31/12/06 Every 3 months	Permit issue date 01/01/07
Total Oxidant (As Chlorine) Parameters as required by condition 3.6.1	W1	Up to 31/12/06 Every 3 months	Permit issue date 01/01/07
Cooling Water Pump Outage Log Parameters as required by condition 3.6.1	W1	Up to 31/12/06 Every 12 months	Permit issue date 01/01/07

**Table S5.2: Annual production/treatment**

<b>Parameter</b>	<b>Units</b>
Electricity exported	GWHrs

**Table S5.3 Performance parameters**

<b>Parameter</b>	<b>Frequency of assessment</b>	<b>Units</b>
Water usage	Annually	M <sup>3</sup>
Energy (Gas) usage	Annually	MJ

**Table S5.4 Reporting forms**

<b>Media/ parameter</b>	<b>Reporting format</b>	<b>Starting Point</b>	<b>Agency recipient</b>	<b>Date of form</b>
Air	Form Air - 2 LCPD Continuous or other form as agreed in writing by the Agency	Permit issue	SI	19/10/06
Air	Form Air - 3 Continuous measurement invalidation log or other form as agreed in writing by the Agency	Permit issue	SI	19/10/06
Air	Form Air - 7 Energy Usage summary or other form as agreed in writing by the Agency	Permit issue	SI & Central office	19/10/06
Air	Form Air - 8 PPC discontinuous or other form as agreed in writing by the Agency	Permit issue	SI	19/10/06
Water	Form Water 1 or other form as agreed in writing by the Agency	Permit issue	SI	19/10/06
Water	Form Pumps 1 or other form as agreed in writing by the Agency	Permit issue	SI	19/10/06
Output	Form Production 1 or other form as agreed in writing by the Agency	Permit issue	SI	19/10/06
Other performance indicators	Form Performance 1 or other form as agreed in writing by the Agency	Permit issue	SI	19/10/06

# 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	

<b>(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</b>	
<b>To be notified within 24 hours of detection</b>	
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>(b) Notification requirements for the breach of a limit</b>	
<b>To be notified within 24 hours of detection unless otherwise specified below</b>	
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	

<b>Time periods for notification following detection of a breach of a limit</b>	
<b>Parameter</b>	<b>Notification period</b>

<b>(c) Notification requirements for the detection of any significant adverse environmental effect</b>	
<b>To be notified within 24 hours of detection</b>	
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.	

<b>Name*</b>	
<b>Post</b>	
<b>Signature</b>	
<b>Date</b>	

\* authorised to sign on behalf of Centrica SHB Limited

## 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.

"*calendar monthly mean*" means the value across a calendar month of all validated hourly means.

"*Central office*" means an office address provided by the Environment Agency in writing for relevant reporting purposes.

"*Combustion Technical Guidance Note*" means IPPC Sector Guidance Note Combustion Activities, version 2.03 dated 27th July 2005 published by Environment Agency.

"*DLN*" means dry, low NO<sub>x</sub> burners.

"*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".

"*large combustion plant*" or "*LCP*" is a combustion plant or group of combustion plants discharging waste gases through a common windshield or stack, where the total thermal input is 50 MW<sub>th</sub> or more, based on gross calorific value.

"*Large Combustion Plant Directive*" means Directive 2001/80/EC of the European Parliament and of the Council of 23 October 2001 on the limitation of emissions of certain pollutants into the air from large combustion plants.

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

"*mcr*" means maximum continuous rating.

"*Natural gas*" means naturally occurring methane with no more than 20% by volume of inert or other constituents.

"*ncv*" means net calorific value.

"*notify without delay*" / "*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.

"*operational hours*" are whole hours commencing from the first unit ending start up and ending when the last unit commences shut down.

"*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.

"*reference conditions*" means:

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.

"*SI*" means site inspector.

"*site protection and monitoring programme*" means a document which meets the requirements for site protection and monitoring programmes described in the Land Protection Guidance.

*“technically competent management”* and *“technical competence”* shall have the meanings given to them in the Environmental Protection Act 1990.

*“year”* means calendar year ending 31 December.

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.
- (b) in relation to gas turbines or compression ignition engines; an oxygen content of 15%, dry, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, for liquid and gaseous fuels.

**END OF PERMIT**