

Notice of variation with introductory note

Environmental Permitting (England & Wales) Regulations 2010

Centrica Brigg Limited

Glanford Brigg Generating Station
Scawby Brook
Brigg
North Lincolnshire
DN20 9LT

Variation application number
EPR/ZP3133LM/V007

Permit number
EPR/ZP3133LM

Glanford Brigg Generating Station

Permit number EPR/ZP3133LM

Introductory note

This introductory note does not form a part of the notice

The following notice gives notice of the variation of an environmental permit.

This variation authorises the installation of one or two gas turbines (GT3A and/or GT3B) with an aggregated maximum thermal input of 280MW at Glanford Brigg Generating Station. The new turbine(s) will be configured for operation in open cycle (OCGT). A pre-operational condition requires the operator to submit details of the final design for the proposed turbine(s) to the Environment Agency for approval prior to installation.

Only natural gas will be used as fuel for the new turbine(s). Natural gas will be supplied by the National Grid national transmission system and no natural gas will be stored on site. The new unit(s) will operate for no more than 500 hours per year in open cycle mode in line with the open cycle operating regime of the existing units. Emissions to air will be via a 30m stack or stacks through emission points A32 and/or A33.

The permit was previously varied to authorise operation of the existing combined cycle gas turbines in open cycle mode for a maximum of 500 hours annually. The operating techniques currently in use will be maintained along with existing management procedures.

Primary NO_x abatement in the form of low NO_x burners as a minimum will be installed with the new turbines. The existing turbines will be fitted with either dry low NO_x burners or water injection abatement systems.

No additional land is required for the purpose of the variation.

The schedules specify the changes made to the original permit.

The status log of a permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	Date	Comments
Application ZP3133LM (EPR/ZP3133LM/A001)	Received 20/03/2006	
Application ZP3133LM (EPR/ZP3133LM/A001)	Received 20/03/2006	
Additional information received	12/07/2007	
Permit Determined (EPR/ZP3133LM)	10/08/2007	
First Variation ZP3538XH (EPR/ZP3133LM/V002)	Determined 01/08/2008	Minor variation
Second Variation (EPR/ZP3133LM/V003) (WP3239KN)	Determined 15/06/09	Minor variation
Variation Application (EPR/ZP3133LM/V004)	Duly made 02/12/11	Normal variation for open cycle operation and by-pass stack
Schedule 5 notice response	04/07/2012	
Additional information	16/10/2012	Response to draft variation notice
Additional information	02/11/2012	Information regarding emergency use
Draft variation	02/12/2012	Response to draft variation notice
Variation issued	18/12/2012	
Variation determined EPR/ZP3133LM/V005 (MP3833ZW)	11/03/2013	Environment Agency Initiated Variation, to incorporate Eel Regulations improvement condition.
Variation Application (EPR/ZP3133LM/V006)	Duly made 21/01/14	Normal variation to include four fixed by-pass stacks for open cycle operation. This incorporates three new by-pass stacks and an extension to the existing by-pass stack.
Additional information	22/04/14	Clarification on sections of plant that will be isolated whilst operating in Open Cycle
Schedule 5 notice response	06/05/14	Additional details of assessment at habitats sites that include nutrient nitrogen, acid deposition and emission concentrations that were not covered in the submitted application
Variation determined EPR/ZP3133LM/V006	23/05/14	Varied permit issued to Centrica Brigg Limited

Status log of the permit		
Description	Date	Comments
Variation Application EPR/ZP3133LM/V007	Duly made 13/06/14	Variation to add two gas turbines to run on Open Cycle mode.
Schedule 5 notice response	20/07/14	Detail of NO _x emission concentration selection.
Additional information received EPR/ZP3133LM/V007	22/08/14	Further details on proposed NO _x abatement techniques and operating mode.
Variation determined EPR/ZP3133LM/V007 (PAS Billing reference: FP3037VP)	31/10/14	Varied permit issued to Centrica Brigg Limited

End of introductory note

Notice of variation

Environmental Permitting (England and Wales) Regulations 2010

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2010 varies

Permit number
EPR/ZP3133LM

issued to:
Centrica Brigg Limited (“the Operator”)

Whose registered office is

Millstream
Maidenhead Road
Windsor
Berkshire
SL4 5GD

Company registration number **02352390**

To operate an installation at

Glanford Brigg Generating Station
Scawby Brook
Brigg
North Lincolnshire
DN20 9LT

To the extent set out in the schedules.

The notice shall take effect from 31/10/2014.

Name	Date
M Bischer	31/10/2014

Authorised on behalf of the Environment Agency

Schedule 1 – conditions to be deleted

None

Schedule 2 – conditions to be amended

The following conditions are amended as a result of the application made by the Operator.

Table S1.1 referred to in condition 2.1.1 is amended as follows:

Table S1.1 activities		
Activity listed in Schedule 1 of the EP 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	Production of electricity from four gas turbines in combined cycle (each with a 70m stack) Production of electricity from a maximum of six gas turbines in open cycle mode, four exhausting via four 30m bypass stacks (GT1A, GT1B, GT2A and GT2B) and two exhausting via a 30m stack or stacks (GT3A and/or GT3B).	The Operation of a gas fired power station (including gas turbines, heat recovery, electrical generators, oil lubrication systems, water abstraction, air compressors, and high voltage switchgear.) From receipt, handling and on-site storage of raw materials to despatch of products and waste. Gas turbine open cycle operation using natural gas only.
Directly Associated Activity		
Directly associated activity	Gas oil and biofuel storage	From receipt of raw materials to dispatch for use.
Directly associated activity	Water treatment	From receipt of raw materials to dispatch of treated effluent, process cooling waters and dirty water system to final discharge via bulking reservoir to the New River Ancholme.
Directly associated activity	Surface water drainage	Handling and storage of site drainage via the site surface water system to the bulking reservoir until final discharge to the New River Ancholme.
Directly associated activity	Miscellaneous utility systems (including diesel starters, fire pumps, lubricating and control systems).	From receipt of raw materials to dispatch for use.
Directly associated activity	Auxiliary Boiler with thermal input of approximately 3.4MW	The operation of a gas or gas oil fired boiler. Used primarily for providing de-aerated water for the heat recovery boilers. The boiler is also used for gland sealing and at main start up periods, from receipt of raw materials to handling and dispatch of product for use.

Table S1.1 activities		
Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
Directly associated activity	Gas heaters	The operation of gas heating plant from receipt of raw materials to handling and dispatch of product for use.

Table S1.2 referred to in condition 2.3.1 is amended to include operating techniques associated with this variation. The amended table is as follows:

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application	The response to section 2.1 and 2.2 in the Application.	20/03/06
Receipt of additional information to the application	Responses to section 2 of application detailing Sump/Bund Inspections, Thermal Input of the Gas Heaters, Cooling Water Pipe-work Flows Underground, Annual Total of Raw Materials Used, Gas Oil Burnt on Site, List of all Vents to Air and Thermal Input of the Auxiliary Boiler.	12/07/07
Variation application EPR/ZP3133LM/V004	<ul style="list-style-type: none"> • Response to question 3 of application form C3; • Overview of application document section 4 	02/12/11
Response to schedule 5 notice for Variation application EPR/ZP3133LM/V004	Paragraph 2 of response to question 5	04/07/12
Variation application EPR/ZP3133LM/V006	Response to questions in application form C2 and C3 and details of plant operation in Doc.Ref.1	27/08/13
Additional information EPR/ZP3133LM/V006	Email response for clarification on sections of plant that will be isolated whilst operating in Open Cycle	22/04/14
Variation application EPR/ZP3133LM/V007	Response to questions in application form C2 and C3 and referenced supporting documentation.	13/06/14
Additional information EPR/ZP3133LM/V007	Email outlining further details on proposed NOx abatement techniques and operating modes.	22/08/14

Table S1.3 referred to in condition 2.5.1 is amended as follows.

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC 1	The Operator shall confirm completion of the Reverse Osmosis (RO) installation. If the installation is not completed at permit issue the Operator shall submit in writing a date for completion of all work. On completion of all work the Operator shall inform Agency.	Completed
IC 2	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	Completed
IC 3	A written plan shall be submitted to the Agency for approval detailing the results of an assessment of the the primary, secondary and tertiary containment arrangements against the requirements of section 2.2.9 of the Technical Guidance Note V2.03 IPPC Sector Guidance Note for Combustion Activities" 27/7/05. A written report summarising the findings, together with a timetable for any improvements identified will be submitted to the Environment Agency. The notification requirements of condition 2.5.2 shall be deemed to have been complied with on submission of the report. The plan shall be implemented by the operator from the date of approval by the Agency.	Completed
IC 4	The Operator shall undertake a review of the Best Available Techniques listed within the Combustion Sector Technical Guidance Note (TGN) IPPC S1.01 Section 2 for Oxides of Nitrogen which will enable them to achieve the Emission Limit Values given within the TGN for the release to air from gas turbines No. 1A & 1B and No. 2A & 2B (emission points A1 – A4) burning natural gas, gas oil and biofuel. 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.	Completed
IC 5	It is not considered to be BAT to operate a CCGT in OCGT mode other than exceptional circumstances The operator should provide a justification of the circumstances under which it may be BAT to operate a CCGT in open cycle mode in the balancing market or other operating regimes. Parameters to consider should include: <ul style="list-style-type: none"> ▪ Emissions to air and impact on human health ▪ Energy efficiency The Environment Agency will use this information along with information from other industry and National Grid to determine generic BAT conditions for the open cycle operation of CCGTs in competition with closed cycle plants. The operator should have regard to the requirements of the balancing market (eg. start up time requirements) and define a maximum run time beyond which the service should be provided by high efficiency plant.	Completed

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC 6	The Operator shall submit a report on the feasibility of carrying out emissions monitoring during open cycle operation. The report shall include results from any monitoring that has been carried out during open cycle operation and how the results would relate to possible emission limit values.	Completed
IC 7	<p>The Operator shall undertake a review of the existing screening measures at the intakes and outfalls which provide and discharge water to and from the Installation. The review shall be undertaken with reference to the Eels (England and Wales) Regulations 2009 (SI 2009/3344) and the Environment Agency "Safe Passage of Eel" Regulatory Position Statement version 1 dated July 2012.</p> <p>The Operator shall submit details of the arrangement suitable to meet the requirements for the safe passage of eels [of the Eels (England and Wales) Regulations 2009 (SI 2009/3344)] by either:-</p> <ul style="list-style-type: none"> • Providing a written proposal for the installation of an eel screen. • Providing a written proposal to the modification of existing screening arrangements. • Providing a written response with an explanation and description of how the existing screening arrangements can be regarded to meet the requirements for the safe passage of eels [of SI 2009/3344] either without change or with mitigation measures. • Providing a written response setting out a case for an exemption <p>In all cases, the proposal shall be submitted in writing for the approval of the Environment Agency. Where appropriate, each proposal shall contain an assessment of alternative options considered including impacts on other fish species and an explanation of why the proposed option has been chosen.</p> <p>Where installation of eel screen; modification of existing arrangements; or mitigation measures are proposed, the submission shall contain relevant timescales for installation in accordance with the Safe Passage of Eel Regulatory Position Statement version 1 dated July 2012.</p> <p>The proposals shall be implemented in accordance with the Environment Agency's written approval.</p>	Completed
IC 8	The Operator shall undertake a study to assess the emissions of NO _x from gas turbines GT1A, GT1B, GT2A and GT2B following the retrofitting of the NO _x abatement systems. A report detailing the findings of the study with reference to the predicted emission level of 50 mg/m ³ shall be submitted to the Environment Agency in writing for approval.	6 months following retrofit of the NO _x abatement technology

Condition 2.6 is amended as follows.

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.

Table S1.4 Pre-operational measures for future development		
Reference	Operation	Pre-operational measures
1	Installation of gas turbine(s) GT3A and/or GT3B	<p>The operator shall submit a report to the Environment Agency providing detailed design(s) for the new gas turbine(s) including drainage systems, proposed abatement and a finalised location plan.</p> <p>The operator shall undertake a review of the final detailed design/ plans for the new unit(s) prior to construction to ensure that:</p> <ol style="list-style-type: none"> 1) the final design will meet the requirements of BAT; 2) the application still accurately reflects the final operating proposals; and 3) the environmental impact assessment still accurately reflects the predicted impacts from the proposal. <p>The operator shall submit a written report to the Environment Agency for approval, 6 months prior to construction, detailing the findings of this review.</p>

Table S4.1 (a) referred to in conditions 3.1.1, 3.6.1 and 3.6.4 is amended as follows.

Table S4.1(a) Point source emissions to air from Gas Turbines						
Emission point ref. & location [Note 1 & 2]	Parameter	Source	Limit (including unit) ^a	Reference period	Monitoring frequency	Monitoring standard or method
A1- A4 [A1 – SE 9903 0600, A2 – SE 9906 0600, A3 – SE 9916 0602, A4 – SE 9918 0602]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	Gas turbines fired on natural gas	125 mg/m ³	Daily mean of validated hourly averages	Continuous	BS EN 14181
		Gas turbines fired on gas oil or biofuel	165 mg/m ³	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Carbon monoxide	Gas turbines fired on natural gas, gas oil or biofuel	No limit set	-	-	-
	Sulphur dioxide	Gas turbines fired on natural gas, gas oil or biofuel	No limit set	-	-	-
	Particulate matter	Gas turbines fired on natural gas, gas oil or biofuel	No limit set	-	-	-
	Unburned fuel gas (as CH ₄) [Note 3]	Gas turbines fired on natural gas, gas oil or biofuel	No limit set	-	-	-

Table S4.1(a) Point source emissions to air from Gas Turbines						
Emission point ref. & location [Note 1 & 2]	Parameter	Source	Limit (including unit)^a	Reference period	Monitoring frequency	Monitoring standard or method
A1a stack [SE 9903 0599]	Flue gas combustion products from burning natural gas	Gas turbine GT1A fired on natural gas during open cycle operation	No limits set	-	-	-
A2a stack [SE 9966 0599]		Gas turbine GT1B fired on natural gas during open cycle operation		-	-	-
A3a stack [SE 9915 0601]		Gas turbine GT2B fired on natural gas during open cycle operation		-	-	-
A4a stack [SE 9918 0601]		Gas turbine GT2A fired on natural gas during open cycle operation		-	-	-
A32 stack [SE 9909 0599] ^b		Gas turbine GT3A fired on natural gas during open cycle operation		-	-	-
A33 stack [SE 9912 0600] ^b		Gas turbine GT3B fired on natural gas during open cycle operation		-	-	-
^a -these limits do not apply during start up or shut down. ^b -number of turbines and final location to be finalised through pre-operational condition 1.						

Table S5.3 referred to in condition 4.2.1 (d) is amended to include the reporting of periods of open cycle operation for emission points A32 and A33. The amended table is as follows:

Table S5.3 Performance parameters		
Parameter	Frequency of assessment	Units
Water usage	Annually	M ³
Gas usage	Annually	MJ related to Net CV
Gas oil usage	Annually	MJ related to Net CV
Biofuel usage	Annually	MJ related to Net CV
Gas usage per MWhr generation	Annually	M ³ /MWhr
Biofuel running time	Annually	Hours
Total annual emissions of Nitrogen Dioxide	Annually	tonnes/MWhrs
Total annual emissions of Sulphur Dioxide	Annually	tonnes/MWhrs

Total annual emissions dust (as total suspended particles)	Annually	tonnes/MWhrs
Electricity (incoming)	Annually	MWhrs
Open cycle operating hours for emission points A1a, A2a, A3a, A4a, A32, A33	Every Quarter	Total hours, total number of runs, duration of longest run and number of runs >2 hrs duration.

Table S5.4 referred to in condition 4.2.1(d) and 4.2.2(b) is amended as follows:

Table S5.4 Reporting forms				
Media/ parameter	Reporting format	Starting Point	Agency recipient	Date of form
Air	Form Air – 2 continuous monitoring or other form as agreed in writing by the Agency	01/10/07	SI	01/09/07
Air	Form Air – 3 continuous measurement systems invalidation log or other form as agreed in writing by the Agency	01/10/07	SI	01/09/07
Air	Form Air – 4 discontinuous monitoring (for annual mass release) or other form as agreed in writing by the Agency	01/10/07	SI & Central office	01/09/07
Air	Form Air - 7 Energy Usage summary or other form as agreed in writing by the Agency	01/10/07	SI & Central office	01/09/07
Air	Form Air - 8 PPC discontinuous monitoring or other form as agreed in writing by the Agency (Auxiliary boiler)	01/10/07	SI	01/09/07
Water	Form water 1 or other form as agreed in writing by the Agency	01/10/07	SI	01/09/07
Air	Form Air - 9 Open Cycle or other form as agreed in writing by the Agency	31/10/14	SI	31/10/14
Water usage	Form water usage1 or other form as agreed in writing by the Agency	01/10/07	SI	01/09/07
Energy usage	Form energy 1 or other form as agreed in writing by the Agency	01/10/07	SI	01/09/07
Other performance indicators	Form performance 1 or other form as agreed in writing by the Agency	01/10/07	SI	01/09/07

Schedule 3 – conditions to be added

None

Schedule 4 – amended plan

None