

# Notice of variation with introductory note

Environmental Permitting (England & Wales) Regulations 2010

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RWE Generation UK plc

Aberthaw Power Station  
The Leys  
Aberthaw  
Near Barry  
Vale of Glamorgan  
CF62 4ZW

Variation application number  
EPR/RP3133LD/V011

Permit number  
EPR/RP3133LD

# **Aberthaw Power Station**

## **Permit number EPR/RP3133LD**

### **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.

The down-shot fired boilers installed at Aberthaw are unique in UK power generation plant and are designed to allow the use of indigenous low volatile coals. This variation is to allow the conversion to low NO<sub>x</sub> boilers (LNBo) at Aberthaw Power Station. The LNBo will allow the power station the ability to continue to burn indigenous low volatile coal with a significant reduction in NO<sub>x</sub> emissions.

This variation also adds a new listed activity following the implementation of the Industrial Emissions Directive (IED). Ash reprocessing was previously carried out as a Directly Associated Activity but will now be carried out as Part A listed activity in its own right as it is considered a waste treatment activity which will require regulation under the newly-prescribed Section 5.4 Part A(1) (b) (iii) of the Environmental Permitting Regulations (EPR).

RWE Generation has stated that Selective Catalytic Reduction (SCR) will no longer be installed at Aberthaw Power Station and all conditions relating to the use of SCR have been removed.

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 EPR/RP3133LD received	Duly made 31/03/06	Application for permit
Additional information requested	26/07/06	
Additional information received	04/10/06, 01/11/06, 10/11/06, 05/12/06, 01/03/07, 16/03/07, 08/08/07, 10/08/07, 22/08/07, 05/09/07, 11/09/07	
Permit determined EPR/RP3133LD	21/12/07	Permit issued
Variation determined GP3635XF	09/01/08	Variation issued
Variation application EPR/RP3133LD/V003	Duly Made 05/03/10	
Variation determined EPR/RP3133LD	13/05/10	Variation issued
Variation application EPR/RP3133LD/V004	Duly made 31/01/11	
Further information received	23/03/11	Addendum to application
Variation determined EPR/RP3133LD	20/06/11	Variation issued
Variation application EPR/RP3133LD/V005	Duly made 08/12/11	
Variation determined EPR/RP3133LD	06/02/12	Variation issued
Variation application EPR/RP3133LD/V006	Duly made 10/09/12	
Additional information requested	02/11/12	
Further information received	13/11/12	Schedule 5 response
Further information received	16/11/12	Addendum to application
Variation determined EPR/RP3133LD/V007	12/11/12	EA Led Variation issued
Variation determined EPR/RP3133LD/V006	17/12/12	Variation issued
Agency Variation determined EPR/RP3133LD/V008	11/03/13	Variation issued
Agency variation determined EPR/RP3133LD/V009	26/03/13	Agency variation to implement the changes introduced by IED
Variation determined EPR/RP3133LD/V010	22/12/14	Natural Resources Wales initiated variation, to add an improvement condition requiring a cost benefit appraisal to ensure compliance with the Eels Regulations.
Application EPR/RP3133LD/V011 (variation)	Duly made 31/03/15	Application to vary the permit to add Low NOx Boilers.
Further information received	15/06/15	Schedule 5 response

Variation determined  
EPR/RP3133LD

28/08/15

Varied permit issued.

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**Other Part A installation permits relating to this installation**

<b>Operator</b>	<b>Permit number</b>	<b>Date of issue</b>
RWE Generation UK plc	EPR/DP3432SW	30/03/07
RWE Generation UK plc	EPR/BP3339BH	04/05/07

End of introductory note

## Notice of variation

Environmental Permitting (England and Wales) Regulations 2010

The Natural Resources Body for Wales (“Natural Resources Wales”) in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2010 varies

**Permit number**  
**EPR/RP3133LD**

**issued to:**  
**RWE Generation UK plc** (“the operator”)

whose registered office is

**Windmill Hill Business Park**  
**Whitehall Way**  
**Swindon**  
**Wiltshire**  
**SN5 6PB**

company registration number **03892782**

to operate a regulated facility at

**Aberthaw Power Station**  
**The Leys**  
**Aberthaw**  
**Near Barry**  
**Vale of Glamorgan**  
**CF62 4ZW**

to the extent set out in the schedules.

The notice shall take effect from 28/08/2015

Name

Date

**Anwen Davies**

**28/08/2015**

Authorised on behalf of Natural Resources Wales

### **Schedule 1 – conditions to be deleted**

The following conditions are deleted as a result of the application made by the operator

Condition 2.6.1 is deleted because the Selective Catalytic Reduction (SCR) plant is no longer required, therefore, the pre-operational conditions before operating the Selective Catalytic Reduction (SCR) plant are no longer required. The deleted condition is as follows:

*The Selective Catalytic Reduction (SCR) units and Activated Carbon Injection (ACI) Systems shall not be brought into operation until the measures specified in Table S1.4 have been completed unless otherwise agreed in writing by the Agency*

Improvement Conditions IC29 – 32 relating to SCR in Table S1.3 have now been deleted as a result of this variation.

Pre-operational conditions POC8 – POC13 relating to SCR in Table S1.4 have been deleted.

## **Schedule 2 – conditions to be amended**

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

Table S1.1 which relates to condition 2.1.1 is amended to remove the vaporisation and supply of ammonia to the SCR units, to change the listed activity reference for the treatment of waste water to reflect the changes to EPR following the implementation of IED, and, to add a new listed activity for the recovery of ash following the implementation of the IED. As a result of this change the Directly Associated Activity for ash reprocessing is removed. The amended table is as follows:

**Table S1.1 activities**

<b>Activity listed in Schedule 1 of the PPC Regulations</b>	<b>Description of specified activity</b>	<b>Limits of specified activity</b>
Section 1.1 Part A(1)(a)	Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more.	<p>Receipt of coal at the coal mills subject to the limitations imposed in Schedule 3 Table S3.1 and S3.2, the supply of recovered char, biomass, gas oil, heavy fuel oil (HFO), processed fuel oil (PFO), coal and propane to the furnace, subject to the limitations imposed in Schedule 3 Table S3.2.</p> <p>The discharge of exhaust gases from the boilers to the stack, including flue gas conditioning with sulphur trioxide and ammonia, and oxides of nitrogen, ash, and sulphur dioxide abatement.</p> <p>The export of steam to the steam turbines in 3 generating units. The supply of gas oil to 3 open cycle gas turbines. This includes any associated activities necessary to maintain the operation of the plant and fuel supplies.</p>
Section 3.5 Part B (f)	Pulverised fuel ash (PFA) handling and storage.	Removal of ash from the electrostatic precipitators to despatch from the installation or to treatment in the ash reprocessing plant.
Section 4.8 Part B (a)	The storage of anhydrous ammonia.	Receipt of anhydrous ammonia through to injection into the boiler flue gas ducts.
Section 5.4 Part A(1)(ii)	Treatment of wastewater from the flue gas desulphurisation plant.	Discharge of seawater from the Flue Gas Desulphurisation process to the discharge from the installation.
<p>Section 5.4 Part A(1) (b) (iii)</p> <p>Recovery or a mix of recovery and disposal of non-hazardous waste in an installation with a capacity of over 75 tonnes per day (or 100 tonnes per day if the only waste treatment activity is anaerobic digestion) involving one or more of the following activities, and excluding activities covered by Council Directive 91/271/EEC - treatment of slags and ashes.</p>	<p>Ash reprocessing – separation of PFA into a low carbon fraction and high carbon char.</p> <p>R 3 Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes)</p> <p>R13: Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced)</p>	From receipt of ash at the reprocessing plant to dispatch to customers and transfer of char to the boilers subject to the limitation imposed in Schedule 3 Table S3.3.



<b>Directly Associated Activity</b>		
Directly associated activity	Fuel storage	Receipt of coal, oil, propane and biomass through to discharge from the mill hoppers or feed to the furnace respectively.
Directly associated activity	Surface water drainage	Handling and storage of site drainage until discharge from the site surface water system.
Directly associated activity	Water treatment	From receipt of raw materials to dispatch to chemical effluent and dirty water system.
Directly associated activity	The generation and export of electricity	The receipt of steam at the steam turbines to the export of electricity to the national grid station and the direct generation of electricity from the gas turbines.
Directly associated activity	The use of water from the Bristol Channel for cooling and the seawater FGD process.	The pumping and filtering of the water, its use in the condensers and for auxiliary cooling, the seawater FGD process and discharge of the water back to the Bristol Channel via the seawater treatment plant for FGD process water.
Carbon capture (<10MW) pilot plant	Removal and recovery of SO <sub>2</sub> and CO <sub>2</sub> from power station flue gas	From flue gas tap-off point to return of treated and recovered gases to power station flue gas system, including the storage, use and regeneration of amine absorbents
Gas oil-fired combustion plant	Supply of steam to the carbon capture (<10MW) pilot plant	Includes storage of gas oil

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

<b>Table S1.2 Operating techniques</b>		
<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
Application	The response to sections 2.1 and 2.2 in the Application.	30/03/06
Schedule 4 Notice Request dated 26/07/06	Response to sections 2.1 f) and h) detailing combustion and seawater FGD process controls.	06/10/06, 01/11/06, 10/11/06, 1/03/07 and 16/03/07, respectively
Receipt of additional information to the application	Further responses to sections 2.1 f), h) and 2.9 c) of the Schedule 4 Notice detailing abatement measures associated with nitrogen oxides emissions control (current status of TIB implementation) and main stack noise emissions respectively.	05/12/06
Receipt of additional information to the application	Further information provided relating to the baseline marine monitoring survey methodology and survey results, the design and operation of the ash reprocessing facility.	8/08/07, 10/08/07 and 22/8/07
Variation application EPR/RP3133LD/V004	Section 2.1, 2.5.2, 2.16, Appendix A and Appendix B of the supporting information	31/01/2011 (duly made)
Variation application EA/EPR/RP3133LD/V005	Table 1 (PFO specification) and section 2.2 of document entitled Application for a variation to Environmental Permit RP3133LD, reference number EA EP RP3133LD Supp Doc V005, dated December 2011.	08/12/2011 (date on which application was duly made)
Variation application EA/EPR/RP3133LD/V011	All Operating techniques as described in sections 2 and 5 – 7 of the document entitled Aberthaw Power Station: Application for a variation to permit EPR/RP3133LD, document reference ENV/RP3133LD	30/03/2015 (duly made)
Receipt of additional information to the application	Schedule 5 Response – responses to questions 1 – 4. Document reference EPR/RP3133LD/SCh5response/2015	15/06/15

Table S1.3 which relates to condition 2.5.1 has the following Improvement Conditions which have been added relating to this variation. The additional conditions are as follows:

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC33	<p>A written report shall be submitted to Natural Resources Wales for approval. This report will update the 2009 Best Available Technique (BAT) review for reduction of trace elements into controlled waters from the installation (IC22), it will specifically address whether an ACI is BAT for abating mercury emissions from Aberthaw Power Station in the absence of SCR.</p> <p>The report shall be submitted to Natural Resources Wales for approval, and the measures and controls identified in the approved report shall be implemented in a timescale agreed with Natural Resources Wales.</p>	Deferred until LCP Bref review.
IC35	<p>The operator shall carry out a review of the Accident Management Plan to take account of the installation of the Low NOx boilers and associated equipment. If the review extends to the entire installation then it will be deemed to have met the requirement of Condition 1.2.1 (b)</p> <p>The reviewed plan shall be submitted to NRW for approval, and the measures and controls identified in the approved plan shall be implemented within 12 months of the written approval of the report by NRW.</p>	Within 3 months of unit 9 low NOx boiler unit being brought into operation.
IC36	<p>Confirm the commissioning date of each Low NOx boiler unit and submit a written post-commissioning report regarding the emission reductions achieved and relevant performance parameters including but not limited to</p> <ul style="list-style-type: none"> <li>• noise</li> <li>• ash quality (and identification of need for PFA landfill HRA review)</li> <li>• carbon in ash levels</li> <li>• tube failure rates</li> <li>• start up, shut down thresholds and boiler stability</li> <li>• slagging</li> <li>• thermal performance</li> <li>• electrostatic precipitator performance</li> <li>• NOx emissions</li> </ul> <p>The report should include a justification of the Best Available Techniques Associated Emission Limits (BAT ELV's) to be adopted upon full implementation of all low NOx boilers. The report shall be submitted to NRW for approval, and the measures and controls identified in the approved report shall be implemented within 12 months of the written approval of the report by NRW.</p>	Within 6 months of each Low NOx boiler unit being brought into operation.

Table S1.4 which relates to condition 2.6.1 has the following pre-operational condition which have been added relating to this variation. The additional condition is as follows:

Table S1.4 Pre-operational Conditions		
Reference	Requirement	Date
POC14	A written report shall be submitted to NRW for approval. The report shall specify the proposed commissioning programme and proposed operational techniques relating to the operation of the first Low NOx boiler. If there are any changes from the commissioning of this LNBo for any subsequent installations these shall also be reported.	Report to be submitted within 1 month of commissioning of the first Low NOx boiler. If the commissioning programme changes for subsequent installations, these reports shall be submitted at least three months before commissioning of each subsequent LNBo unit.

**Schedule 3 – conditions to be added**

None