

Notice of variation with introductory note

Environmental Permitting (England & Wales) Regulations 2010

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_x 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_x 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.

Other Part A installation permits relating to this installation

| Operator | Permit number | Date of issue |
|-----------------------|----------------------|----------------------|
| 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

| Activity listed in Schedule 1 of the PPC Regulations | Description of specified activity | Limits of specified activity |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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. |

| Directly Associated Activity | | |
|-------------------------------------|-----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 ₂ and CO ₂ 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:

| Table S1.2 Operating techniques | | |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------|
| Description | Parts | Date Received |
| 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"> • noise • ash quality (and identification of need for PFA landfill HRA review) • carbon in ash levels • tube failure rates • start up, shut down thresholds and boiler stability • slagging • thermal performance • electrostatic precipitator performance • NOx emissions <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