Notice of variation with introductory note

Environmental Permitting (England & Wales) Regulations 2010

RWE npower plc

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

Variation application number

EPR/RP3133LD/V006

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.

This variation notice amends the environmental permit to allow the operation of Selective Catalytic Reduction (SCR) to reduce emissions of oxides of nitrogen to air, the implementation of activated carbon injection to increase mercury removal from combustion gasses, and an increase in the quantity of ammonia (used in the SCR process) stored on site.

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	02/11/2012	
Further information received	13/11/2012	Schedule 5 response
Further information received	16/11/2012	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

Other Part A installation permits relating to this installation		
Operator	**Permit number**	**Date of issue**
RWE npower plc	EPR/DP3432SW	30/03/07
RWE npower plc	EPR/BP3339BH	04/05/07

Other existing Licences/Permits/Registrations relating to this site		
Holder	**Reference Number**	**Date of issue**
RWE npower plc	21/57/31/0040	30/03/07

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/RP3133LD

issued to:
RWE npower plc ("the operator")

whose registered office is
Windmill Hill Business Park
Whitehill Way
Swindon
Wiltshire
SN5 6PB

company registration number 3892782

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 17/12/12

Name	Date
Eirian Macdonald	**17/12/2012**

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:

Condition 2.6.1 is amended to ensure pre-operational conditions are met before operating the Selective Catalytic Reduction (SCR) plant. The amended condition is as follows:

2.6.1 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.

Table S1.1 is amended to include the activities of removing of oxides of nitrogen from the flue gas and the injection of activated carbon into the flue gases to remove mercury. 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.	Receipt of coal at the coal mills subject to the limitations imposed in Schedule 3 Table S3.1, vaporisation and supply of ammonia to the SCR abatement units and 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. The discharge of exhaust gases from the boilers to the stack, including flue gas conditioning with sulphur trioxide and ammonia, activated carbon injection for mercury removal, and oxides of nitrogen, ash, and sulphur dioxide abatement. 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.
Section 5.3 Part A(1)(c)(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.
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.

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	Ash reprocessing	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	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 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/V006	All Operating techniques as described in sections 2.1, 2.2, 2.3, 2.4, 2.6, then sections 6 to 14 of the document entitled 'Environmental Permit Variation Application for Aberthaw Power Station Selective Catalytic Reduction (SCR) Emissions Reduction Project, Environmental Permit RP3133LD, EPR Ref. EPR/RP3133LD/V006' However, detailed operational techniques were not supplied as part of that document for the SCR units and ACI systems. Operational techniques for the SCR units will be finalised, submitted and approved prior to their commissioning (preoperational measure in table S1.4 POC8). Operational techniques for the Activated Carbon Injection (ACI) systems will be finalised, submitted and approved prior to their commissioning (preoperational measure in table S1.4 POC9).	On approval by the Agency of POC8 (prior to the first SCR unit being brought into operation) and on approval by the Agency of POC9 (prior to the first ACI system being brought into operation).

Table S1.3 has the following Improvement Conditions added relating to this variation. The additional conditions are as follows:

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC29	The operator shall carry out a review of the Accident Management Plan to take account of the addition of the SCR plant and associated equipment, in particular the bulk ammonia storage tanks. If the review extends to the entire installation then it will be deemed to have met the requirement of Condition 1.2.1 (b) The reviewed plan shall be submitted to the Agency 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 the Agency.	2 months before either any SCR unit is commissioned or any change in the ammonia storage facilities.
IC30	The operator shall carry out a review of the Site Condition Reports to take account of the addition of the SCR plant and associated equipment, in particular the bulk ammonia storage tanks. If the review extends to the entire installation then it will be deemed to have met the requirement of Condition 2.8.2	Within 6 months of each SCR unit being brought into operation.
IC31	Confirm the commissioning date of each SCR unit and submit a written post-commissioning report regarding the emission reductions achieved and relevant performance parameters including but not limited to • noise, • ash quality (and identification of need for pfa landfill HRA review), • catalyst degradation, • thermal performance. • electrostatic precipitator performance The report should include a justification of the Best Available Techniques Associated Emission Limits (BAT AELs) to be adopted upon full implementation[1]. The report shall be submitted to the Agency 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 the Agency.	Within 9 months of each SCR unit being brought into operation.
IC32	A written report shall be submitted to the Agency for approval. The report shall summarise the performance of each ACI system and quantify the mercury abatement performance achieved.	Within 12 months of each SCR unit being brought into operation.
IC33	A written report shall be submitted to the Agency 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. The report shall be submitted to the Agency 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 the Agency.	Within 12 months of this variation being issued.

[1] As specified in the Best Available Techniques Reference Note (BRef) for Large Combustion Plant published by the European Commission.

Table S1.4 has the following pre-operational conditions added relating to this variation. The additional conditions are as follows:

Table S1.4 Pre-operational Conditions		
Reference	**Requirement**	**Date**
POC8	A written report shall be submitted to the Agency for approval. The report shall specify the proposed commissioning programme and proposed operational techniques relating to the operation of each Selective Catalytic Reduction (SCR) unit. The commissioning programme shall not start until written approval for the operational techniques has been received from the Environment Agency.	Report to be submitted not less than three months before the first SCR unit is commissioned
POC9	A written report shall be submitted to the Agency for approval. The report shall specify the proposed commissioning programme and proposed operational techniques relating to the operation of the Activated Carbon Injection (ACI) systems. The commissioning programme shall not start until written approval for the operational techniques has been received from the Environment Agency.	Report to be submitted not less than three months before the first ACI unit is brought into operation.
POC10	A written report shall be submitted to the Agency for approval. The report shall propose a methodology for demonstrating compliance with the mercury annual mass emission limit.	Report to be submitted not less than three months before the first SCR unit is commissioned.
POC11	A written report shall be submitted to the Agency for approval. The report shall assess the re-use, recovery or disposal options for used activated carbon generated from ACI. This will include the option of heat recovery at the power station. The measures and controls identified in the approved report shall be implemented within 6 months of the written approval of the report by the Agency.	Within 3 months of the first ACI system being commissioned.
POC12	Proposed written operational instructions (OI) shall be submitted to the Agency for approval. These will cover the operation of the SCR units, the ACI systems and the anhydrous ammonia storage, handling and receipt and associated systems. All procedures, measures and controls identified in the approved OIs shall be implemented prior to the operation of the SCR units, ACI systems or any changes to the Ammonia Storage and handling facilities and systems.	Operational Instructions to be submitted not less than three months before the first SCR unit is brought into operation.
POC13	A written report shall be submitted to the Agency for approval. The report shall propose a regime for ash sampling and monitoring including relevant analysis techniques. All measures identified in the approved report shall be implemented prior to the operation of the SCR units, ACI systems or any changes to the Ammonia Storage and handling facilities and systems.	Report to be submitted not less than three months before the first SCR unit is brought into operation.

Table S4.3 is amended to change the emission limits and monitoring requirements for point source emissions to sewer, effluent treatment plant or other transfers off site. The amended table is as follows:

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
SWTP1 [Unit 7 FGD absorber outlet to seawater treatment plant]	Mercury and its compounds, expressed as mercury (Total Hg)	Unit 7 FGD absorber	0.001 mg/l (above background)	24-hour composite sample	Maximum daily value monitored weekly	BS EN 13506
SWTP1 [Unit 7 FGD absorber outlet to seawater treatment plant]	Mercury and its compounds, expressed as mercury (Total Hg)	Unit 7 FGD absorber	0.0005 mg/l (above background)	24-hour composite sample	Monthly average of daily samples	BS EN 13506
SWTP1 [Unit 7 FGD absorber outlet to seawater treatment plant]	Cadmium and its compounds, expressed as cadmium (Total Cd)	Unit 7 FGD absorber	0.0002 mg/l (above background)	24-hour composite sample	Monthly average of daily samples	BS 6068-2.89
SWTP1 [Unit 7 FGD absorber outlet to seawater treatment plant]	Lead and its compounds, expressed as lead (Total Pb)	Unit 7 FGD absorber	0.004 mg/l (above background)	24-hour composite sample	Monthly average of daily samples	BS 6068
SWTP1 [Unit 7 FGD absorber outlet to seawater treatment plant]	Zinc and its compounds, expressed as zinc (Total Zn)	Unit 7 FGD absorber	0.01 mg/l (above background)	24-hour composite sample	Monthly average of daily samples	BS 6068
SWTP2 [Unit 8 FGD absorber outlet to seawater treatment plant]	Mercury and its compounds, expressed as mercury (Total Hg)	Unit 8 FGD absorber	0.001 mg/l (above background)	24-hour composite sample	Maximum daily value monitored weekly	BS EN 13506

Table S4.3 Point source emissions to sewer, effluent treatment plant or other transfers off-site– emission limits and monitoring requirements						
SWTP2 [Unit 8 FGD absorber outlet to seawater treatment plant]	Mercury and its compounds, expressed as mercury (Total Hg)	Unit 8 FGD absorber	0.0005 mg/l (above background)	24-hour composite sample	Monthly average of daily samples	BS EN 13506
SWTP2 [Unit 8 FGD absorber outlet to seawater treatment plant]	Cadmium and its compounds, expressed as cadmium (Total Cd)	Unit 8 FGD absorber	0.0002 mg/l (above background)	24-hour composite sample	Monthly average of daily samples	BS 6068-2.89
SWTP2 [Unit 8 FGD absorber outlet to seawater treatment plant]	Lead and its compounds, expressed as lead (Total Pb)	Unit 7 FGD absorber	0.004 mg/l (above background)	24-hour composite sample	Monthly average of daily samples	BS 6068
SWTP2 [Unit 8 FGD absorber outlet to seawater treatment plant]	Zinc and its compounds, expressed as zinc (Total Zn)	Unit 7 FGD absorber	0.01 mg/l (above background)	24-hour composite sample	Monthly average of daily samples	BS 6068
SWTP3 [Unit 9 FGD absorber outlet to seawater treatment plant]	Mercury and its compounds, expressed as mercury (Total Hg)	Unit 9 FGD absorber	0.001 mg/l (above background)	24-hour composite sample	Maximum daily value monitored weekly	BS EN 13506
SWTP3 [Unit 9 FGD absorber outlet to seawater treatment plant]	Mercury and its compounds, expressed as mercury (Total Hg)	Unit 9 FGD absorber	0.0005 mg/l (above background)	24-hour composite sample	Monthly average of daily samples	BS EN 13506
SWTP3 [Unit 9 FGD absorber outlet to seawater treatment plant]	Cadmium and its compounds, expressed as cadmium (Total Cd)	Unit 9 FGD absorber	0.0002 mg/l (above background)	24-hour composite sample	Monthly average of daily samples	BS 6068-2.89
SWTP3 [Unit 9 FGD absorber outlet to seawater treatment plant]	Lead and its compounds, expressed as lead (Total Pb)	Unit 7 FGD absorber	0.004 mg/l (above background)	24-hour composite sample	Monthly average of daily samples	BS 6068
SWTP3 [Unit 9 FGD absorber outlet to seawater treatment plant]	Zinc and its compounds, expressed as zinc (Total Zn)	Unit 7 FGD absorber	0.01 mg/l (above background)	24-hour composite sample	Monthly average of daily samples	BS 6068

Table S4.4 is amended to change the annual emission limits. The amended table is as follows:

Table S4.4 Annual limits(Excluding start up and shut down except where otherwise stated).

Substance	Medium	Limit (including unit)		Emission Points
Sulphur dioxide	Air	Assessment year	Installation A Limit (includes start up and shut down)	A1 – A3 (Unit 7, 8 and 9 flues respectively)
		01/10/06-31/12/07	50,700 tonnes	
		01/01/08-31/12/08 and subsequent years	39,000 tonnes	Windshield A1
Sulphur dioxide	Air	Assessment year	Operator B limit[a]	Relevant processes
		01/10/06-31/12/07	103,610 tonnes	
		01/01/08-31/12/08 and subsequent years	46,142 tonnes	
Sulphur dioxide	Air	Process B limit		Windshield A1
Sulphur dioxide	Air	11.4 tSO_2/GWh averaged across each assessment year until 31/12/07		Boiler plant not fitted with FGD[b]
Oxides of nitrogen	Air	Assessment year	Installation Annual Emission Limit (includes start up and shut down)	A1 – A3 (Unit 7, 8 and 9 flues respectively)
		01/10/06-31/12/07	46,800 tonnes	
		01/01/13 and subsequent years	33,000 tonnes	Windshield A1
Oxides of nitrogen	Air	Assessment year	Operator B Limit[a]	Relevant processes
		01/01/08 –31/12/08 and subsequent years	68,710 tonnes	
Oxides of nitrogen	Air	Process B limit		Windshield A1
Mercury and its compounds, expressed as mercury (Total Hg)	Controlled Water	60 kg [c]		W1 and W2 (including start-up and shut-down)

[a] or such other limit for that year as has been approved by the Agency following notification by the operators on form SO1 or NO1(as referred to in Schedule 5, table S5.4).

[b] In the case of an installation which contains boiler plant with and without FGD fitted in any assessment year the tSO_2/GWhr limit shall apply on the basis of an appropriate pro-rating, subject to prior approval by the Agency of the basis of the calculation**.**

[c] Determined as agreed in writing following completion of Improvement Condition reference POC10 in Table S1.4 of Schedule 1 in this permit.

Table S4.5 is amended to change the surface water monitoring requirements. The amended table is as follows:

Table S4.5 Surface water monitoring requirements

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Seawater intake from Bristol Channel	Total suspended solids	24-hour composite sample	BS EN 872	analysed **weekly** and reported monthly as monthly average
Seawater intake from Bristol Channel	pH	Continuous	BS6068-2.50	reported monthly as min max and average pH
Seawater intake from Bristol Channel	Mercury and its compounds, expressed as mercury (Total Hg)	24-hour composite sample	BS EN 13506	reported monthly as monthly average
Seawater intake from Bristol Channel	Mercury (on filtered sample)	24-hour composite sample	BS EN 13506	reported monthly as monthly average

Table S4.8 is amended to change the process monitoring requirements. The amended table is as follows:

Table S4.8 Process monitoring requirements

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
W2 [twin discharge structures located at NGR ST01656588 and ST01636595]	Dissolved Oxygen (DO)	Continuous	EN 25814	reported monthly as min, max and average DO
SWTP1, 2 & 3 [Unit 7, 8 & 9 FGD absorber outlets to seawater treatment plant]	pH	Continuous	BS6068-2.50	reported monthly as min, max and average pH
SWTP1, 2 & 3 [Unit 7, 8 & 9 FGD absorber outlets to seawater treatment plant]	Flow	Continuous	BS 3680	reported monthly as average daily flow rate and total monthly volume
SWTP1, 2 & 3 [Unit 7, 8 & 9 FGD absorber outlets to seawater treatment plant]	Arsenic and its compounds, expressed as arsenic (Total As)	24-hour composite sample	BS 6068	reported monthly as monthly average
SWTP1, 2 & 3 [Unit 7, 8 & 9 FGD absorber outlets to seawater treatment plant]	Chromium VI and its compounds, expressed as chromium (Total Cr VI)	24-hour composite sample	BS 6068	reported monthly as monthly average
SWTP1, 2 & 3 [Unit 7, 8 & 9 FGD absorber outlets to seawater treatment plant]	Selenium and its compounds, expressed as selenium (Total Se)	24-hour composite sample	BS 6068	reported monthly as monthly average
Trace elements in coal delivered to the station	All List I & II elements liable to be present plus selenium	Each parent delivery [a]	UKAS accredited ICPMS [a]	reported annually as annual average
Windshield A1 [153 metre high 3 flue stack located at NGR ST023663]	Individual boiler flue efflux temperature	Continuous	Calibrated and traceable to national standards	reported monthly as minimum hourly and monthly averages
A13, A14, A15 [Seawater absorber inlet flues from Unit 7, 8 and 9 boiler electrostatic precipitators respectively]	Particulate Matter	Continuous	To be confirmed upon completion of Improvement Condition reference IC20	reported monthly as maximum hourly and monthly averages

Schedule 3 – conditions to be added

None.