

Notice of variation and consolidation with introductory note

Environmental Permitting (England & Wales) Regulations 2016

RWE Generation UK plc

Pembroke Power Station
West Pennar
Pembroke
Pembrokeshire
SA71 5SS

Variation application number
EPR/DP3333TA/V005

Permit number
EPR/DP3333TA

Pembroke Power Station

Permit number EPR/DP3333TA

Introductory note

This introductory note does not form a part of the notice.

This variation is to add an Emergency Back-up Generating Plant (EBGP). The EBGP will provide auxiliary power to start one main generating unit at Pembroke Power Station at any given time, independently of external power supplies following the loss of the latter. It may also provide essential power supplies to the other main generating units as well as essential common Station services during an interruption to power supplies from the Grid. The EBGP will not itself export power to the Grid via the existing power station's Grid connections.

The EBGP will consist of 3 No. reciprocating natural gas engine generator units, each with a rated thermal input of approx. 7.6 MWth (22.8 MWth aggregated) and electrical output of approx. 3.4 MWe combined with a lithium-ion battery energy storage system (BESS) with a rated storage capacity of 6.27 MWh and a maximum output of 10 MWe when supplying power. The gas engine units are located within individual cells within a single power house structure. Each engine has an individual exhaust stack extending up to 15 m above local ground level incorporating a vertically mounted silencer.

There will also be the addition of:

- other Auxiliary Electrical Plant equipment. It is proposed to add a resistive load bank, a new transformer and a new switchroom, located to the south of the Unit 31 turbine building. It may also be necessary to install harmonic filters. If so these would be located in the same area.
- Gas Pressure Reduction Facility including gas heaters. A new gas pressure let-down facility will be installed to reduce the pressure of the gas supply to the new auxiliary gas engine units from the incoming National Transmission System pressure of up to 85 barg to approximately 8 barg to supply the gas engines, in contrast to the existing gas turbines which use gas at high pressure. This will incorporate two small gas-fired package boilers with an aggregate thermal rating of approximately 100 kWth to heat the gas supply to the gas engines to counter the cooling effect of adiabatic expansion of the gas as its pressure is reduced.
- Surface water drainage will additionally include drainage from the EBGP and runoff from new building roofs, roadways and hardstanding's constructed as part of the EBGP Project within the revised Installation boundary but will otherwise be unaltered.
- Other Directly associated activities DAA's such as storage of oils and chemicals (principally lubricating oil) required for the operation and maintenance and increase in site boundary to accommodate the EBGP system.

Part of the EBGP operation will result in modifications to Existing Main CCGT Generating Units. The main CCGT unit being started and operated in a supply restoration situation has to be capable of picking up load almost instantaneously as successive groups of consumers are reconnected to the Grid. To accommodate these sudden step increases in load ("block loads"), which may be up to 35 MWe at a time, the CCGT unit will need to be operated differently from normal. Some significant modifications to the control systems of the two CCGT units adapted for operation under these conditions are proposed, to enable them to respond immediately to block loads. These modifications will not alter the mode of operation of these CCGT units in normal operating conditions.

The schedules specify the changes made to the permit. Schedule 1 of the notice specifies the conditions that have been varied and Schedule 2 comprises a consolidated permit which reflects the changes being made.

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 EA/EPR/DP3333TA/A001	25/03/10	Date on which application was duly made.
Further information requested	20/07/10	Further information requested relating to impacts on conservation sites.
Further information received	30/07/10	Response to request for further information dated 20/07/10.
Further information requested	04/08/10	Further information requested relating to consideration of Combined Heat and Power (CHP).
Further information received	17/08/10	Revised noise receptor drawing.
Further information requested	24/08/10	Further information requested relating to impact on Limestone Coasts of South-West Wales SAC.
Further information received	01/09/10	Response to request for further information dated 24/08/10 (Limestone Coasts of South-West Wales SAC).
Further information received	03/09/10	Response to request for further information dated 04/08/10 (CHP).
Further information received.	12/10/10	Noise model input data.
Further information requested	22/10/10	Further information requested relating to noise, impacts on terrestrial habitats, water treatment plant effluent composition and findings in respect of the impact of the proposed cooling water discharge on the Pembrokeshire Marine SAC.
Further information received	12/11/10	Noise model input data (including national grid references for noise sources)
Further information received	16/11/10	Response to terrestrial habitats, noise and water treatment plant effluent composition elements of request for further information dated 22/10/10 (water treatment plant element subsequently superseded).
Further information received	26/11/10	Response to elements of request for further information dated 22/10/10 relating to water treatment plant effluent composition and findings in respect of the impact of the proposed cooling water discharge on the Pembrokeshire Marine SAC (water treatment plant element subsequently superseded).
Further information received	30/11/10	NOx conversion information.
Further information received	01/12/10	NOx conversion and noise information.
Further information received	23/12/10	HRSG blow-down information.
Further information requested	14/01/11	Further information relating to noise.
Further information received	17/01/11	First order decay modelling of TRO plume and addendum.

Status log of the permit		
Description	Date	Comments
Further information received	28/01/11	Revised response to water treatment plant composition element of request for further information dated 22/10/10 (subsequently superseded).
Further information received	09/02/11	Second addendum to first order decay modelling of TRO plume.
Further information received	18/02/11	Revised response to water treatment plant composition element of request for further information dated 22/10/10 (subsequently superseded).
Further information received	08/03/11	Air quality information
Further information received	15/03/11	Consideration of thermal plume impact on inter-tidal benthos.
Further information received	22/03/11	Consideration of the potential for formation of chlorination by-products and amended permit application documentation (revised Supporting Document for a New Environmental Permit Application).
Further information received	24/03/11	Further information in respect of sodium hypochlorite dosing of the main cooling water system and drum screens (subsequently superseded).
Further information received	29/03/11	Information received in respect of inter-cooling and plan received showing pump house drainage detail. Summary of 2011 noise survey data also submitted.
Further information received	11/04/11	Response to noise further information request dated 14/01/11 (revised noise impact assessment (Chapter 2 of Part II of Volume 2 of the permit application)). This was subsequently superseded.
Further information received	13/04/11	Section 36 stack height information. Revised drainage plan and plan of air and water release points (incorporating revised installation boundary). Both were subsequently superseded.
Further information received	20/04/11	Further information received in respect of noise associated with vessels in the Haven. Information also received in respect of plant thermal inputs and accounting for cooling water pump acoustic panels in the modelling of noise emissions.
Further information received	05/05/11	Revised Appendix 2.3 of permit application (Cooling water system vulnerability to bio-fouling). This has subsequently been superseded.
Further information received	09/05/11	Further information received in respect of BAT for noise minimisation.
Further information received	11/05/11	Revised plan of air and water release points (showing revised installation boundary), revised plan of site layout and installation boundary, and revised plan of permanent operational drainage (showing revised installation boundary). Further information also received in respect of plant thermal inputs (additional to that previously received).
Further information received	17/05/11	Further information received in relation to nutrients.

Status log of the permit		
Description	Date	Comments
Further information received	18/05/11	Further information received in relation to metals and cooling water retention time.
Further information received	27/05/11	Further information received in respect of noise impact (at Pwllcrochan and Hundleton)
Further information received	02/06/11	Further information received on water quality modelling in response to CEFAS queries.
Further information received	10/06/11	Revised short- and long-term assessment of nutrient and metal contributions to W1 discharge from HRSG blow-down, water treatment plant and HRSG chemical clean effluent.
Further information received	13/06/11	Further revised response to water treatment plant composition element of request for further information dated 22/10/10 (subsequently superseded).
Further information received	15/06/11	Further revised Appendix 2.3 of permit application (Cooling water system vulnerability to bio-fouling) and further information on sodium hypochlorite dosing of the main cooling water system and drum screens also received (subsequently superseded). Confirmation of capacity to isolate drum screens received.
Further information received	16/06/11	Further revised noise impact assessment (Chapter 2 of Part II of Volume 2 of the permit application). This supersedes all previous versions. Further revised Appendix 2.3 of permit application (Cooling water system vulnerability to bio-fouling) and further information on sodium hypochlorite dosing of the main cooling water system and drum screens also received (supersedes all previous versions).
Further information received	28/06/11	Confirmation of the use of hydrofluoric acid in the commissioning process.
Further information received	01/07/11	Confirmation that all substances have been accounted for in W1 discharge screening document
Further information received	07/07/11	Further revised Supporting Document for a New Environmental Permit Application, revised Chapter 2 of Part 1 of Volume 2 of the permit application and revised Chapter 3 of Part 2 of Volume 2 of the permit application (all amended to include hydrofluoric acid).
Further information received	27/07/11	Confirmation of TRO dispersion modelling at fixed value of 50µg/l.
Further information received	03/08/11	Confirmation of approach to screening of water treatment plant emissions
Further information received	22/08/11	Further information in respect of nutrient load
Further information received	23/08/11	Further information in respect of phosphorus, nitrogen and unionised ammonia
Further information received	24/08/11	Further information in respect of phosphorus emissions and effects on eelgrass beds

Status log of the permit		
Description	Date	Comments
Further information requested	12/09/11	Further information requested in respect of the effect of nutrient emissions on macro-algal growth, the toxicity of phosphonates and updates to the W1 emissions screening report.
Further information received	13/09/11	Information regarding mitigation of phosphate emissions
Further information received	15/09/11	Further information regarding mitigation of phosphate emissions
Further information received	19/09/11	Response to further information request dated 12/09/11 regarding assessment of the impact of nutrient emissions on macro-algal growth
Further information received	23/09/11	Response to further information request dated 12/09/11 regarding phosphonates, updated W1 emissions screening report and revised assessment of the impact of nutrient emissions on macro-algal growth
Further information received	26/09/11	Further revised response to further information request dated 12/09/11 regarding assessment of the impact of nutrient emissions on macro-algal growth
Further information received	27/09/11	Response to further information request dated 12/09/11 (MSDS for new anti-scalant)
Further information received	29/09/11	Further revised W1 emissions screening report
Further information received	06/10/11	Further updated W1 emissions screening report
Further information received	07/10/11	Further information regarding mitigation of phosphate emissions
Further information received	10/10/11	Further information regarding mitigation of phosphate emissions
Further information received	11/10/11	Further updated W1 emissions screening report, amended to account for the change in the Applicant's proposals from dosing with trisodium phosphate to dosing with sodium hydroxide.
Application determined	10/11/11	Permit issued
Application EPR/DP3333TA/V002	Duly made 07/01/13	Application to vary the permit to include an onsite sewage treatment plant
Variation determined EPR/DP3333TA/V002	26/07/13	Varied permit issued
Regulation 60 Notice sent to the Operator	14/11/14	Issue of a Notice under Regulation 60(1) of the EPR. Natural Resources Wales initiated review and variation to vary the permit under IED to implement the special provisions for LCP under Chapter III, introducing new Emission Limit Values (ELVs) applicable to LCP, referred to in Article 30(2) and set out in Annex V. The permit is also updated to modern conditions.
Regulation 60 Notice response	30/03/15	Response received from the Operator.
Additional information received	30/07/15	Response to request for further information (RFI) dated 08/06/15.
Variation determined EPR/DP3333TA/V003	22/12/2015	Varied and consolidated permit issued in modern condition format. Variation effective from 01/01/2016.

Status log of the permit		
Description	Date	Comments
Regulation 61 Notice sent to the Operator	10/05/2018	Issue of a Notice under Regulation 61(1) of the EPR. Natural Resources Wales initiated review and variation to vary the permit introduce new Emission Limit Values (ELVs) following the publication of the revised Best Available Techniques (BAT) Reference Document (BRef) for Large Combustion Plants (LCP).
Regulation 61 Notice response	16/11/2018	Response received from the Operator.
Additional information received	28/08/2019	Response to request for further information (RFI) dated 10/06/2019
Variation determined EPR/DP3333TA/V004	02/07/2020	Varied and consolidated permit issued in modern condition format. Variation effective from 02/07/2020.
Application EPR/DP3333TA/V005	Duly made 28/07/2020	Application to vary the permit to regulate an Emergency Back-up Generation Plant.
Variation determined EPR/DP3333TA/V005	16/10/2020	Varied and consolidated permit issued to operator.

Other Part A installation permits relating to this installation		
Operator	Permit number	Date of issue
RWE Generation UK plc	GB-EA-ETCO2-1399 (EU ETS permit)	12/02/08
RWE Generation UK plc	22/61/6/156 (abstraction licence)	03/02/09
RWE Generation UK plc	EPR/HP3820XU (water discharge activity permit pertaining to site drainage)	14/06/11

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2016

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 2016 varies and consolidates

Permit number

EPR/DP3333TA

Issued to

RWE Generation UK plc (“the operator”)

whose registered office is

Windmill Hill Business Park

Whitehill Way

Swindon

Wiltshire

SN5 6PB

company registration number 03892782

to operate a regulated facility at

Pembroke Power Station

West Pennar

Pembroke

Pembrokeshire

SA71 5SS

to the extent set out in the schedules.

The notice shall take effect from 16/10/2020

Name	Date
Holly Noble	16/10/2020

Authorised on behalf of Natural Resources Wales

Schedule 1

All conditions have been varied by the consolidated permit as a result of a Natural Resources Wales initiated variation.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.