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# Permit with introductory note

Environmental Permitting (England & Wales) Regulations 2016

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Siemens Energy Limited

Severn Power Station  
West Nash Road  
Newport  
Gwent  
NP18 2BZ

Variation application number

EPR/HP3737UE/V007

Permit number

EPR/HP3737UE

# Severn Power Station

## Permit number EPR/HP3737UE

### Introductory note

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

This permit controls the operation of a large combustion plant. The relevant listed activity is Section 1.1 A(1)(a) of the Environmental Permitting (England and Wales) Regulations 2016: Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more. The permit implements the Chapter III requirements for large combustion plant (LCP) of the EU Directive on Industrial Emissions and implements the requirements of Chapter II in relation to the application of Best Available Techniques.

The main features of the facility are as follows.

The installation is located at West Nash Road, Newport, Gwent, NGR 332460, 183680 and covers an area of approximately 6ha. This facility is surrounded by a number of existing large-scale industrial developments such as a coal-fired power station and several protected habitats are situated within 15km of the installation, namely the Severn Estuary SAC (candidate), SPA, Ramsar and SSSI; River Usk (Lower Usk) / Afon Wysg (Wysglsaf) SAC and SSSI; Gwent Levels - Nash and Goldcliff SSSI and Gwent Levels - St Brides SSSI. The site is operated and maintained by Siemens Energy Limited.

Severn Power Station is a 1,438MWth Combined Cycle Gas Turbine (CCGT) consisting of two single shaft machines with a gas turbine and steam turbine generator on the same shaft line, and a nominal overall efficiency of 57.3%. The gas turbine produces a hot exhaust gas used to generate steam in a boiler (HRSG) and drive a steam-powered turbine. Both turbines drive a common generator to produce electricity for direct delivery via the National Transmission System. The gas turbines use dry low NO<sub>x</sub> technology to control emissions. Exhaust gases from the two HRSGs are discharged to atmosphere via two stacks, 65m in height and 8m in diameter (LCP Windshields 1 and 2). Low energy steam leaving the steam turbine is sent to the Air Cooled Condenser (ACC) to be cooled and converted back to condensate for reuse in the HRSG therefore there is no requirement for large quantities of cooling water to be abstracted from and returned to the River Usk and there is no steam plume because no water is released from the condenser, only heat.

The exact power supply requirements and operating regime is subject to power supply agreements with National Grid and may result in continuous operations during winter months and 12-hourly operations during summer months, with the resultant increase in emissions due to numerous start-up and shut-downs.

The main fuel used within the installation is natural gas. No back up fuel will be used in the principal combustion equipment at this installation therefore in the event of the gas turbines tripping, emergency diesel generators will be started automatically to supply emergency power. Emissions from a small 11MWth, natural gas-fired auxiliary boiler will be controlled using good combustion techniques and regular maintenance. The auxiliary boiler is required to produce steam when no HRSG is in operation.

The main emissions from the combustion of natural gas are oxides of nitrogen and carbon monoxide with additional emissions of sulphur dioxide from the combustion of diesel. The main pollutant of concern for local impacts is nitrogen oxide (NO) which is then converted to nitrogen dioxide (NO<sub>2</sub>) in the atmosphere and any sulphur dioxide emissions are controlled by the sulphur specification of the diesel and its limited use.

There will be no direct discharge of effluents to controlled waters. Neutralised Effluent from the Water Treatment Plant and the Condensate Polishing Plant will be batch discharged to the river Usk via an above ground pipework system and controlled by this permit. The capacity of the neutralisation pit is 250m<sup>3</sup> and discharge occurs based on pH control and level in the pit. At a discharge rate 21 kg/s it will take approximately 3½ hours to empty the pit. Depending on plant operations it is anticipated that it may then take several days to refill the pit before the next discharge occurs.

The installation includes two 50m<sup>3</sup> above ground bulk effluent storage tanks and associated pipework. The storage tanks are located in a fully bunded area and are utilised to contain ammoniated effluent from the condensate polishing regeneration process prior to disposal offsite by road tanker. The bulk storage tank system ensures better segregation of effluent streams as the ammoniated liquors can be directly routed to the tanks thus avoiding cross contamination with other non-ammoniated effluents thereby minimising the volume needed to be tankered off site for treatment. There are two 30m<sup>3</sup> underground bulk effluent storage tanks and associated pipework. The storage tanks are used to contain ammoniated effluent from the MAJ vacuum pump systems prior to treatment and disposal off-site. The storage tanks are double skinned and incorporate a leak detection system between the skins and level indication which are both integrated into the existing Distributed Control System (DCS) system for the plant.

Oily Water from the process building sumps, sampling, auxiliary boiler blowdown will be collected in a holding pond, batch discharged to the river Usk and controlled by this permit. There are two holding ponds (duty/standby) each having a capacity of 150m<sup>3</sup> and discharge occurs based on the level in the pit. At a discharge rate 20kg/s it will take approximately 2 hours to empty one of the holding ponds. Depending on plant operations it is anticipated that it may then take several days to refill the pond before the next discharge occurs.

Surface Water run-off from roofs and roads will be collected in a separate holding pond with a capacity of 2,500m<sup>3</sup>. It is emptied on level control via an oil/water separator and is expected to be of sufficient quality to be reused in cleaning the air cooled condensers (ACC) with any overflow directed to the river Usk under this permit.

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

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
Application HP3737UE	Duly made 26/03/09	
Additional Information Requested	27/10/09	
Additional Information Received	20/11/09	
Further Information Received	02/12/09	MSDS for acid and caustic solutions. SPL ref SEV-MISC-0087
Further Information Received	28/01/10	Water impact assessment. SPL ref SEV-MISC-0108
Further Information Received	10/03/10	H1 Spreadsheets
Further Information Received	22/03/10	Chemical cleaning operations ref SEV-MISC-0140
Permit determined EPR/HP3737UE	09/04/10	
Variation application EPR/HP3737UE/V002	Duly made 26/05/11	
Variation determined EPR/HP3737UE/V002	11/07/11	
Variation application EPR/HP3737UE/V003	Duly made 20/07/11	
Variation determined EPR/HP3737UE/V003	20/09/11	
Variation application EPR/HP3737UE/V004	Duly made 22/07/14	Application to relocate release point to River Usk and clarify monitoring requirements
Additional information received	18/08/14	Revised effluent discharge procedure

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
Additional information requested	13/11/14	
Additional information received	14/11/14	Amended site plan showing route of relocated pipeline and discharge point into the River Usk
Variation determined EPR/HP3737UE/V004 Permit number: EPR/HP3737UE	04/12/14	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	18/03/15	Response received from the Operator.
Additional information received	01/07/15	Response to request for further information (RFI) dated 11/06/15.
Variation determined EPR/HP3737UE/V005	22/12/15	Varied and consolidated permit issued in modern condition format. Variation effective from 01/01/2016.
Regulation 61 Notice sent to the Operator	09/05/2018	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	08/11/2018	Response received from the Operator.
Additional Information requested from the operator	05/06/2019	Additional details relating to Best Available Techniques
Additional information received	30/08/2019	Additional details relating to Best Available Techniques
Transfer Application EPR/HP3737UE/T006	Duly made 17/03/2020	Application to transfer the permit in full from Siemens PLC to Siemens Energy Limited
Transfer Application EPR/HP3737UE/T006	02/04/2020	Transfer of permit complete
Variation determined EPR/HP3737UE/V007	30/06/2020	Varied and consolidated permit issued in modern condition format to Siemens Energy Limited.

<b>Other permits relating to this installation</b>		
<b>Operator</b>	<b>Permit number</b>	<b>Date of issue</b>
Severn Power Limited	UK-W-IN-11928 (EU ETS permit)	7 December 2018

End of introductory note

# Permit

## The Environmental Permitting (England and Wales) Regulations 2016

Permit number

**EPR/HP3737UE**

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/HP3737UE/V007 authorising,

**Siemens Energy Limited** (“the operator”),

whose registered office is

**Faraday House**

**Sir William Siemens Square**

**Frimley**

**Camberly**

**GU16 8QD**

company registration number **00631825**

to operate an installation at

**Severn Power Station**

**West Nash Road**

**Newport**

**Gwent**

**NP18 2BZ**

to the extent authorised by and subject to the conditions of this permit.

Name	Date
<b>Holly Noble</b>	<b>30/06/2020</b>

Permitting Team Leader – Installations and RSR

Authorised on behalf of Natural Resources Wales

# Conditions

## 1 Management

### 1.1 General management

1.1.1 The operator shall manage and operate the activities:

- (a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and
- (b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

### 1.2 Energy efficiency

1.2.1 The operator shall:

- (a) take appropriate measures to ensure that energy is used efficiently in the activities;
- (b) take appropriate measures to ensure the efficiency of energy generation at the permitted installation is maximised;
- (c) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and
- (d) take any further appropriate measures identified by a review.

1.2.2 The operator shall review the viability of Combined Heat and Power (CHP) implementation at least every 4 years, or in response to any of the following factors, whichever comes sooner:

- (a) new plans for significant developments within 15 km of the installation;
- (b) changes to the Local Plan;
- (c) changes to the UK CHP Development Map or similar; and
- (d) new financial or fiscal incentives for CHP.

The results shall be reported to Natural Resources Wales within 2 months of each review, including where there has been no change to the original assessment in respect of the above factors.

### 1.3 Efficient use of raw materials

1.3.1 The operator shall:

- (a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;
- (b) maintain records of raw materials and water used in the activities;
- (c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and
- (d) take any further appropriate measures identified by a review.

## **1.4 Avoidance, recovery and disposal of wastes produced by the activities**

- 1.4.1 The operator shall take appropriate measures to ensure that:
- (a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities;
  - (b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and
  - (c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.
- 1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

## **2 Operations**

### **2.1 Permitted activities**

- 2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the “activities”).

### **2.2 The site**

- 2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

### **2.3 Operating techniques**

- 2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by Natural Resources Wales.
- 2.3.2 For the following activities referenced in schedule 1, table S1.1: LCP324 and LCP325. Without prejudice to condition 2.3.1, the activities shall be operated in accordance with the “Electricity Supply Industry IED Compliance Protocol for Utility Boilers and Gas Turbines” revision 1 dated December 2015 (as amended) or any later version unless otherwise agreed in writing by Natural Resources Wales.
- 2.3.3 If notified by Natural Resources Wales that the activities are giving rise to pollution, the operator shall submit to Natural Resources Wales for approval within the period specified, a revision of any plan or other documentation (“plan”) specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.
- 2.3.4 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.5 For the following activities referenced in schedule 1, table S1.1: LCP324 and LCP325. The end of the start-up period and the start of the shutdown period shall conform to the specifications set out in Schedule 1, tables S1.2 and S1.4.
- 2.3.6 For the following activities references in schedule 1, table S1.1: LCP324 and LCP325. The effective Dry low NO<sub>x</sub> threshold shall conform to the specifications set out in Schedule 1 table S1.2 and S1.5.

- 2.3.7 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:
- (a) the nature of the process producing the waste;
  - (b) the composition of the waste;
  - (c) the handling requirements of the waste;
  - (d) the hazardous property associated with the waste, if applicable; and
  - (e) the waste code of the waste.
- 2.3.8 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

## **2.4 Improvement programme**

- 2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by Natural Resources Wales.
- 2.4.2 Except in the case of an improvement which consists only of a submission to Natural Resources Wales, the operator shall notify Natural Resources Wales within 14 days of completion of each improvement.

## **3 Emissions and monitoring**

### **3.1 Emissions to water, air or land**

- 3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1 and S3.2.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.

### **3.2 Emissions of substances not controlled by emission limits**

- 3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.
- 3.2.2 The operator shall:
- (a) if notified by Natural Resources Wales that the activities are giving rise to pollution, submit to Natural Resources Wales for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;
  - (b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.
- 3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

### **3.3 Odour**

3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of Natural Resources Wales, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.3.2 The operator shall:

- (a) if notified by Natural Resources Wales that the activities are giving rise to pollution outside the site due to odour, submit to Natural Resources Wales for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;
- (b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

### **3.4 Noise and vibration**

3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of Natural Resources Wales, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

3.4.2 The operator shall:

- (a) if notified by Natural Resources Wales that the activities are giving rise to pollution outside the site due to noise and vibration, submit to Natural Resources Wales for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;
- (b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by Natural Resources Wales.

### **3.5 Monitoring**

3.5.1 The operator shall, unless otherwise agreed in writing by Natural Resources Wales, undertake the monitoring specified in the following tables in schedule 3 to this permit:

- (a) point source emissions specified in tables S3.1 and S3.2.

3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continuous), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.

3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by Natural Resources Wales.

3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1 and S3.2 unless otherwise agreed in writing by Natural Resources Wales.

### **3.6 Monitoring for Large Combustion Plant**

3.6.1 All monitoring required by this permit shall be carried out in accordance with the provisions of Annex V of the Industrial Emissions Directive and the LCP Bref BAT conclusions.

3.6.2 If the monitoring results for more than 10 days a year are invalidated within the meaning set out in condition 3.6.7, the operator shall:

- (a) within 28 days of becoming aware of this fact, review the causes of the invalidations and submit to Natural Resources Wales for approval, proposals for measures to improve the reliability of the continuous measurement systems, including a timetable for the implementation of those measures; and
  - (b) implement the approved proposals.
- 3.6.3 Continuous measurement systems on emission points from the LCP shall be subject to quality control by means of parallel measurements with reference methods at least once every calendar year.
- 3.6.4 Unless otherwise agreed in writing by Natural Resources Wales in accordance with condition 3.6.5 below, the operator shall carry out the methods, including the reference measurement methods, to use and calibrate continuous measurement systems in accordance with the appropriate CEN standards.
- 3.6.5 If CEN standards are not available, ISO standards, national or international standards which will ensure the provision of data of an equivalent scientific quality shall be used, as agreed in writing with Natural Resources Wales.
- 3.6.6 Where required by a condition of this permit to check the measurement equipment, the operator shall submit a report to Natural Resources Wales in writing, within 28 days of the completion of the check.
- 3.6.7 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3, tables S3.1; the Continuous Emission Monitors shall be used such that:
  - a) for the continuous measurement systems fitted to the LCP release points defined in Tables S3.1 the validated hourly, monthly, annual and daily averages shall be determined from the measured valid hourly average values after having subtracted the value of the 95% confidence interval;
  - b) the 95% confidence interval for nitrogen oxides and sulphur dioxide of a single measured result shall be taken to be 20%;
  - c) the 95% confidence interval for dust releases of a single measured result shall be taken to be 30%;
  - d) the 95% confidence interval for carbon monoxide releases of a single measured result shall be taken to be 10%;
  - e) an invalid hourly average means an hourly average period invalidated due to malfunction of, or maintenance work being carried out on, the continuous measurement system. However, to allow some discretion for zero and span gas checking, or cleaning (by flushing), an hourly average period will count as valid as long as data has been accumulated for at least two thirds of the period. Such discretionary periods are not to exceed more than 5 in any one 24-hour period unless agreed in writing. Where plant may be operating for less than the 24-hour period, such discretionary periods are not to exceed more than one quarter of the overall valid hourly average periods unless agreed in writing; and
  - f) any day, in which more than three hourly average values are invalid shall be invalidated.

## **4 Information**

### **4.1 Records**

- 4.1.1 All records required to be made by this permit shall:
  - (a) be legible;
  - (b) be made as soon as reasonably practicable;
  - (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

- (d) be retained, unless otherwise agreed in writing by Natural Resources Wales, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:
  - (i) off-site environmental effects; and
  - (ii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by Natural Resources Wales.

## 4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to Natural Resources Wales using the contact details supplied in writing by Natural Resources Wales.

4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to Natural Resources Wales by 31 January (or other date agreed in writing by Natural Resources Wales) each year. The report(s) shall include as a minimum:

- (a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data; and
- (b) the annual production /treatment data set out in schedule 4 table S4.2; and
- (c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.
- (d) where condition 2.3.5 applies the hours of operation in any year shall be reported to Natural Resources Wales.

4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by Natural Resources Wales, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

- (a) in respect of the parameters and emission points specified in schedule 4 table S4.1;
- (b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4; and
- (c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to Natural Resources Wales, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

## 4.3 Notifications

4.3.1 In the event:

- (a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—
  - (i) inform Natural Resources Wales,
  - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and
  - (iii) take the measures necessary to prevent further possible incidents or accidents;
- (b) of a breach of any permit condition the operator must immediately—
  - (i) inform Natural Resources Wales, and

- (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
  - (c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.
- 4.3.2 Any information provided under condition 4.3.1(a)(i) or 4.3.1 (b)(i) where the information relates to the breach of a condition specified in the permit shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.
- 4.3.3 Where Natural Resources Wales has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform Natural Resources Wales when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to Natural Resources Wales at least 14 days before the date the monitoring is to be undertaken.
- 4.3.4 Natural Resources Wales shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:
  - Where the operator is a registered company:
    - (a) any change in the operator's trading name, registered name or registered office address; and
    - (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.
  - Where the operator is a corporate body other than a registered company:
    - (c) any change in the operator's name or address; and
    - (d) any steps taken with a view to the dissolution of the operator.
  - In any other case:
    - (e) the death of any of the named operators (where the operator consists of more than one named individual);
    - (f) any change in the operator's name(s) or address(es); and
    - (g) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.
- 4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:
  - (a) Natural Resources Wales shall be notified at least 14 days before making the change; and
  - (b) the notification shall contain a description of the proposed change in operation.
- 4.3.6 Natural Resources Wales shall be given at least 14 days notice before implementation of any part of the site closure plan.
- 4.3.7 Where the operator has entered into a climate change agreement with the Government, Natural Resources Wales shall be notified within one month of:
  - (a) a decision by the Secretary of State not to re-certify the agreement;
  - (b) a decision by either the operator or the Secretary of State to terminate the agreement; and
  - (c) any subsequent decision by the Secretary of State to re-certify such an agreement.
- 4.3.8 The operator shall inform Natural Resources Wales in writing of the closure of any LCP within 28 days of the date of closure.

## **4.4 Interpretation**

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made “immediately”, in which case it may be provided by telephone.

# Schedule 1 – Operations

<b>Table S1.1 activities</b>			
<b>Activity reference</b>	<b>Activity listed in Schedule 1 of the EP Regulations</b>	<b>Description of specified activity</b>	<b>Limits of specified activity</b>
AR1	Section 1.1 A(1) (a): Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more.	LCP324 (Unit 10), 721MWth and LCP325 (Unit 20), 717MWth: Electricity is generated using two single shaft machines with a gas turbine and a steam turbine on the same shaft line. Hot gases from the gas turbines pass into heat recovery steam generators (HRSG) from which high pressure steam is extracted and passed into steam turbines which drive generators to produce electricity. Electricity is exported to the National Grid.	The receipt and storage of raw materials including natural gas (excluding the AGI gas receiving facilities), water treatment chemicals, lubricating oils and water. All cooling systems and the closed cooling water system. The two 65m high stacks from the HRSGs, and the associated devices and systems for controlling combustion conditions and emissions. The receipt, storage and operation of the demineralised water plant, condensate polishing plants and those required for conditioning of the water/steam cycle systems. Includes the initial commissioning period for all new equipment.
AR2		11MWth natural gas fired auxiliary boiler.	From receipt of gas to generation of steam
AR3		Back-up power supply: two emergency diesel generators, 780kVA each	Includes oil and diesel receipt and storage.
<b>Directly Associated Activity</b>			
AR4		Two generator step-up transformers, 506MVA each.	
AR5		Condensate polishing plant	From receipt of condensate to discharge of effluent to the water storage and neutralisation pit. Including the storage of ammoniated effluent in two 50m <sup>3</sup> storage tanks pending collection and disposal off site.
AR5		Water treatment plant	From receipt of water to discharge of effluent to the water storage and neutralisation pit.
AR6		Water storage and neutralisation pit.	From receipt of treated process water through to discharge of neutralised treated effluent to river Usk
AR7		MAJ vacuum pump system.	Including the storage of ammoniated effluent in two 30m <sup>3</sup> underground storage tanks

<b>Table S1.2 Operating techniques</b>		
<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
Application	Sections 2 and 5 of the application document in response to section 5a technical standards Part B of the application form, and the Odour Management Plan, Noise Management Plan and Fugitive Emissions Management Plan in Section 4 of the Application.	26/03/09
Response to Schedule 5 Notice dated 27/10/09	The entire response	20/11/09
Chemical cleaning operations. Document reference: SAG-SEV-1118	The entire document	21/08/09
Chemical cleaning operations. Document reference: SEV-MISC-0140	The entire document and associated impact assessments	22/03/10
Variation Application EPR/HP3737UE/V002	Parts C2 and C3 and the supplementary information supplied with these parts.	26/05/11
Variation Application EPR/HP3737UE/V003	Parts C2 and C3 and the supplementary information supplied with these parts.	20/07/11
Variation Application EPR/HP3737UE/V004	Document Reference SOM_02: "Treatment Plant Outfall – NRW Application Support Document", specifically section 4.1 stating that saltmarsh vegetation will be monitored for a 24 month period following after completion of the outfall relocation work.	22/07/14
Variation Application EPR/HP3737UE/V004 – Additional Information Received	Engineering Procedure EP-06.094 - "Severn Power CCGT Effluent Discharge Procedure"	18/08/14
Response to regulation 60(1) Notice – request for information dated 14/11/14	Compliance route and operating techniques identified in response to questions 2 (LCP compliance route), 4 (LCP configuration), 5 (LCP net rated thermal input), 6 (MSUL/MSDL) and 11 (Monitoring requirements).	18/03/15
Receipt of additional information to the regulation 60(1) Notice requested by letter dated 11/06/15	Additional information provided for response to questions 5 (LCP net rated thermal input) and 6 (MSUL/MSDL).	01/07/15
Regulation 61 Notice response	All parts of response to LCP Regulation 61 Environmental Permit Review sent 09/05/2018.	08/11/2018
Receipt of additional information to the Regulation 61 Notice response.	All parts of response to request for further information (RFI) on the Operator's LCP Reg 61 response (RFI sent 05/06/2019).	30/08/2019

**Table S1.3 Improvement programme requirements**

Reference	Requirement	Date
IC1	Commencement of commercial operations The Operator shall write to the Environment Agency informing us of the date upon which commercial operations commence.	Completed
IC2	Operating procedures, emergency response procedures and training The Operator shall submit a report to the Environment Agency, confirming that the necessary operating and emergency response procedures are in place (with references to Section 1 of EPR 1.00 guidance note "Getting the Basics Right" available at the following location: <a href="http://publications.environment-agency.gov.uk/pdf/GEHO0209BPHU-e-e.pdf">http://publications.environment-agency.gov.uk/pdf/GEHO0209BPHU-e-e.pdf</a> , Section 1.4 of Guidance Note H1 Environmental Risk Assessment Part 1, section 2.3 of the Technical Guidance Note for the Combustion Sector and sections 2.3.2 and 4.10 of the Application), are available for review and that staff have received the necessary training.	Completed
IC3	Monitoring emissions to air 1 The Operator shall use MCERTs contractors to undertake air emissions monitoring in accordance with M1, to assess the homogeneity of flow within stacks A1 and A2. To give the Environment Agency the opportunity to audit these testing procedures on site, the Operator shall submit a copy of the contractor's Site Specific Protocol (SSP) to The Environment Agency.	Completed
IC4	Monitoring emissions to air 2 The Operator shall submit a report to the Environment Agency demonstrating that the relevant QAL1 and QAL2 requirements of BS EN 14181 have been achieved.	Completed
IC5	Noise monitoring The Operator shall conduct a noise survey in accordance with Appendix C of Appendix A4 of the Application, BS4142:1997 and the Horizontal Guidance Note IPPC H3 Part 2 noise guidance. Also, review and compare the findings against indicative BAT requirements and if necessary, justify where Rating Levels (as defined in BS 4142: 1997) from the installation exceed the numerical value of the Background Noise Level (LA90,T) at the noise- sensitive receptors and carry out a tonal assessment using 1/3 octave and narrow band frequency analysis to identify the source of any problem plant noise.  Submit a copy of the report to the Environment Agency. Where improvements are required, the report shall include proposals with an implementation plan, to be agreed with The Environment Agency.	Completed
IC6	Commissioning report Following the commissioning of the plant, the Operator shall submit to the Environment Agency a report detailing the outcome of the commissioning programme. The report shall include the following: verification of the emissions to air and controlled waters and identification of any changes to the operating techniques and plant performance provided in the application. Where deviations from the application have occurred, their environmental impact shall be considered and if necessary, a timetable to implement appropriate remedial work shall be included.	Completed

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC7	<p>Effluent from the condensate polishing plant</p> <p>a) Operator shall review all relevant options for treating the effluent from the condensate polishing plant, resulting from resin cleaning activities. This should use an appropriate method such as the Environment Agency's H1 Guidance Part A 'Options Appraisal' and shall include:</p> <ul style="list-style-type: none"> <li>• a cost/benefit comparison with the current practice of tankering the effluent away</li> <li>• options for treatment at local treatment facilities</li> <li>• treatment technique options and a comparison of the expected concentrations of chemical species in the treated and untreated effluent e.g. ammonia</li> <li>• a comparison against the emissions benchmark values given in the relevant technical guidance or BREF.</li> </ul> <p>b) Should the assessment show that the effluent is of a potential suitable quality for discharge, an impact assessment using the Environment Agency's H1 Guidance Part B 'Software Tool ' or other approved modelling technique shall be used.</p> <p>The Operator shall submit a report to Natural Resources Wales for approval, together with a timetable to implement all proposed actions.</p>	30/09/2020
IC8	<p>Energy efficiency plan</p> <p>The Operator shall submit an energy efficiency plan to Natural Resources Wales, for approval. The plan shall comply with the requirements of the Combustion Technical Guidance and section 2.7.2 of Horizontal Guidance Note H2 entitled Energy Efficiency.</p> <p>The approved energy efficiency plan shall be implemented from the date of approval.</p>	Completed
IC9	<p>Background air monitoring</p> <p>The Operator shall obtain representative and auditable background NO2 air monitoring data in the year 2010 and compare it to the estimated background data supplied in Section 2.2.2 of the Application's Appendix A3.</p> <p>If the measured 2010 background data is found to be less than that predicted in the Application, the Operator shall simply report these results to the Environment Agency.</p> <p>If the measured 2010 background data is found to be higher than that predicted in the Application, the Operator shall re-run the air model and supply the source data, the model assumptions, the model outputs and an H1 impact assessment of the results, to the Environment Agency. If this impact assessment indicates that improvements are required, an implementation timetable shall accompany the final submission.</p>	Completed
IC10	<p>The operator shall write to Natural Resources Wales for approval if an increase in the ELV limits set in table S3.1 of this permit is sought to the allowable limits set out in IED Annex V, Part 1, and paragraph 6.</p> <p>The written submission from the operator shall contain :-</p> <ul style="list-style-type: none"> <li>• verification of the efficiency quoted for the plant</li> <li>• an assessment of any efficiency gains that may be gained through the limit increase together with detailed proposals for validating this figure.</li> <li>• an assessment of the impact of those increased emission limits from site on any air quality objectives; and</li> </ul> <p>any impact the increased emissions might have on local receptors.</p>	IC removed 07/06/2017

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
IC11	<p>Black Start Operation</p> <p>The operator shall produce and submit a written Black Start Response Plan to Natural Resources Wales, for approval. The plan shall contain an impact assessment demonstrating that there is no significant environmental risk associated with black start operations and:</p> <ul style="list-style-type: none"> <li>• propose a methodology for minimisation of environmental impact during such a period of operation; and</li> <li>• include the procedure for the notification of black start operation and its duration.</li> </ul> <p>The methodology for operation and reporting set out in the report shall be implemented by the Operator from the date of approval by Natural Resources Wales.</p>	01/01/2021

<b>Table S1.4 Start-up and Shut-down thresholds</b>		
<b>Emission Point and Unit Reference</b>	<b>“Minimum start-up load” Generated load (MW) and percentage of rated electrical output (%)</b>	<b>“Minimum shut-down load” Generated load (MW) and percentage of rated electrical output (%)</b>
A1 LCP324 and A2 LCP325	217MWe; 52.6%	217MWe; 52.6%

<b>Table S1.5 Effective Dry Low NO<sub>x</sub> thresholds</b>	
<b>Emission Point and Unit Reference</b>	<b>Effective Dry Low NO<sub>x</sub> threshold Load in MW and as percent of rated power output (%) and discrete processes</b>
LCP324 (A1) LCP325 (A2)	217 MW <sub>e</sub> gross generated (equivalent to 52.6% of the rated electrical output)

## Schedule 2 – Waste types, raw materials and fuels

<b>Table S2.1 Raw materials and fuels</b>	
<b>Raw materials and fuel description</b>	<b>Specification</b>
Diesel for the two emergency diesel generators	Not exceeding 0.1% w/w sulphur content

## Schedule 3 (a) – Emissions and monitoring until 16<sup>th</sup> August 2021

Table S3.1 Point source emissions to air from Gas Turbines >100MWth						
Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1, located at Longitude -2.97615 and Latitude 51.54794 and A2 located at Longitude - 2.97552 and Latitude 51.54707. Also marked on the site plan in Schedule 7	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	LCP324 and LCP325 Gas turbines fired on natural gas	50 mg/m <sup>3</sup> 70% to base load	Monthly mean of validated hourly averages	Continuous	BS EN 14181
	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	LCP324 and LCP325 Gas turbines fired on natural gas	50 mg/m <sup>3</sup> 70% to base load and MSUL/MSDL to base load	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	LCP324 and LCP325 Gas turbines fired on natural gas	100 mg/m <sup>3</sup> 70% to base load	Maximum validated hourly average	Continuous	BS EN 14181
A1, located at Longitude -2.97615 and Latitude 51.54794 and A2 located at Longitude - 2.97552 and Latitude 51.54707. Also marked on the site plan in Schedule 7	Carbon monoxide	LCP324 and LCP325 Gas turbines fired on natural gas	100 mg/m <sup>3</sup> 70% to base load	Monthly mean of validated hourly averages	Continuous	BS EN 14181
	Carbon monoxide	LCP324 and LCP325 Gas turbines fired on natural gas	110 mg/m <sup>3</sup> 70% to base load and MSUL/MSDL to base load	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Carbon monoxide	LCP324 and LCP325 Gas turbines fired on natural gas	200 mg/m <sup>3</sup> 70% to base load	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181

**Table S3.1 Point source emissions to air from Gas Turbines >100MWth**

Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1, located at Longitude -2.97615 and Latitude 51.54794 and A2 located at Longitude - 2.97552 and Latitude 51.54707. Also marked on the site plan in Schedule 7	Oxygen	LCP324 and LCP325 Gas turbines fired on natural gas	No limit set	None set	Continuous or as appropriate to measurement techniques	BS EN 14181
	Water vapour	LCP324 and LCP325 Gas turbines fired on natural gas	No limit set	None set	Continuous or as appropriate to measurement techniques	BS EN 14181
	Stack gas temperature	LCP324 and LCP325 Gas turbines fired on natural gas	No limit set	None set	Continuous or as appropriate to measurement techniques	Traceable to national standards
	Stack gas pressure	LCP324 and LCP325 Gas turbines fired on natural gas	No limit set	None set	Continuous or as appropriate to measurement techniques	Traceable to national standards
	Stack gas volume flow	LCP324 and LCP325 Gas turbines fired on natural gas	No limit set	None set	Continuous	BS EN 16911 & TGN M2
	Sulphur dioxide	LCP324 and LCP325 Gas turbines fired on natural gas	No limit set	None set	6 monthly by calculation	Agreed in writing with NRW
	Dust	LCP324 and LCP325 Gas turbines fired on natural gas	No limit set	None set	6 monthly by calculation	Agreed in writing with NRW

<b>Table S3.1 Point source emissions to air from Gas Turbines &gt;100MWth</b>						
<b>Emission point ref. &amp; location</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)-these limits do not apply during start up or shut down.</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
A1, located at Longitude -2.97615 and Latitude 51.54794 and A2 located at Longitude -2.97552 and Latitude 51.54707. Also marked on the site plan in Schedule 7	Flow and Homogeneity	LCP324 and LCP325 Gas turbines fired on natural gas	No limit set	None set	Pre-operation and when there is a significant operational change	BS EN 15259 & Method Implementation Document for EN 15259.
Flue gas exhaust A3, on site plan in Schedule 7	No parameters set	Auxiliary boiler	No limit set	None set	None set	None set
Diesel exhausts A4 and A5, on site plan in Schedule 7	No parameters set	Emergency diesel generators	No limit set	None set	None set	None set
Hydrogen vents A6 and A7 on site plan in Schedule 7	No parameters set	The gas and steam turbine generator buildings	No limit set	None set	None set	None set
Lube oil vents A8 and A9 on site plan in Schedule 7	No parameters set	The gas and steam turbine generator building	No limit set	None set	None set	None set
Fuel gas vents A10 and A11 on site plan in Schedule 7	No parameters set	The gas and steam turbine generator building	No limit set	None set	None set	None set
Fuel gas vent A12 on site plan in Schedule 7	No parameters set	Gas compressor house	No limit set	None set	None set	None set

<b>Table S3.1 Point source emissions to air from Gas Turbines &gt;100MWth</b>						
<b>Emission point ref. &amp; location</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)-these limits do not apply during start up or shut down.</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
Fuel gas vents A13 and A14, on site plan in Schedule 7	No parameters set	Gas metering and filter facilities	No limit set	None set	None set	None set
Boiler blowdown tank vent A15 and A16, on site plan in Schedule 7	No parameters set	HRSG buildings	No limit set	None set	None set	None set
A17 Diesel firewater pump exhaust, on site plan in Schedule 7	No parameters set	Fire fighting pump house diesel exhaust	No limit set	None set	None set	None set
A18 water heater boiler exhausts, on site plan in Schedule 7	No parameters set	Gas reception facilities	No limit set	None set	None set	None set

<b>Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements</b>						
<b>Emission point ref. &amp; location</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (incl. unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
W1 - The neutralisation pit, on site plan in schedule 7	pH	Process effluents from the water treatment plant and condensate polishing plant.	6-9	Continuous	Immediately prior to batch discharge	BS6068-2.50

**Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (incl. unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
W1 - The neutralisation pit, on site plan in schedule 7	Total ammonia	Process effluents from the water treatment plant and condensate polishing plant.	None set	Spot	Monthly	BS EN ISO 11732:2005
W2 – rainwater collection pond, on site plan in schedule 7	No limit set	Surface Water run-off from roofs and roads via an oil/water interceptor.	None set	None set	None set	None set
W3 – process water collection pond	No limit set	Water from the process building sumps, sampling and auxiliary boiler blowdown via an oil/water interceptor.	None set	None set	None set	None set

## Schedule 3 (b) – Emissions and monitoring from 17<sup>th</sup> August 2021

Table S3.1 Point source emissions to air from Gas Turbines >100MWth						
Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1, located at Longitude -2.97615 and Latitude 51.54794 and A2 located at Longitude - 2.97552 and Latitude 51.54707. Also marked on the site plan in Schedule 7	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	LCP324 and LCP325 Gas turbines fired on natural gas	40 mg/m <sup>3</sup> Effective Dry Low NOx to Base load	Annual mean of validated hourly averages	Continuous	BS EN 14181
	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	LCP324 and LCP325 Gas turbines fired on natural gas	50 mg/m <sup>3</sup> Effective Dry Low NOx to Base load	Monthly mean of validated hourly averages	Continuous	BS EN 14181
	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	LCP324 and LCP325 Gas turbines fired on natural gas	50 mg/m <sup>3</sup> Effective Dry Low NOx to Base load and MSUL/MSDL to base load	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	LCP324 and LCP325 Gas turbine fired on natural gas	100 mg/m <sup>3</sup> Effective Dry Low NOx to Base load	Maximum validated hourly average	Continuous	BS EN 14181
A1, located at Longitude -2.97615 and Latitude 51.54794 and A2 located at Longitude - 2.97552 and Latitude 51.54707. Also marked on the site	Carbon monoxide	LCP324 and LCP325 Gas turbines fired on natural gas	30 mg/m <sup>3</sup> Effective Dry Low NOx to Base load	Annual mean of validated hourly averages	Continuous	BS EN 14181
	Carbon monoxide	LCP324 and LCP325 Gas turbines fired on natural gas	100 mg/m <sup>3</sup> Effective Dry Low NOx to Base load	Monthly mean of validated hourly averages	Continuous	BS EN 14181

**Table S3.1 Point source emissions to air from Gas Turbines >100MWth**

Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
plan in Schedule 7	Carbon monoxide	LCP324 and LCP325 Gas turbines fired on natural gas	110 mg/m <sup>3</sup> Effective Dry Low NOx to Base load and MSUL/MSDL to base load	Daily mean of validated hourly averages	Continuous	BS EN 14181
	Carbon monoxide	LCP324 and LCP325 Gas turbines fired on natural gas	200 mg/m <sup>3</sup> Effective Dry Low NOx to Base load	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A1, located at Longitude -2.97615 and Latitude 51.54794 and A2 located at Longitude -2.97552 and Latitude 51.54707. Also marked on the site plan in Schedule 7	Oxygen	LCP324 and LCP325 Gas turbines fired on natural gas	None set	None set	Continuous or as appropriate to measurement techniques	BS EN 14181
A1, located at Longitude -2.97615 and Latitude 51.54794 and A2 located at Longitude -2.97552 and Latitude 51.54707. Also marked on the site	Water vapour	LCP324 and LCP325 Gas turbines fired on natural gas	None set	None set	Continuous or as appropriate to measurement techniques	BS EN 14181
	Stack gas temperature	LCP324 and LCP325 Gas turbines fired on natural gas	None set	None set	Continuous or as appropriate to measurement techniques	Traceable to national standards

**Table S3.1 Point source emissions to air from Gas Turbines >100MWth**

Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
plan in Schedule 7	Stack gas pressure	LCP324 and LCP325 Gas turbines fired on natural gas	None set	None set	Continuous or as appropriate to measurement techniques	Traceable to national standards
	Stack gas volume flow	LCP324 and LCP325 Gas turbines fired on natural gas	None set	None set	Continuous	BS EN 16911 & TGN M2
	Sulphur dioxide	LCP324 and LCP325 Gas turbines fired on natural gas	None set	None set	6 monthly by calculation	Agreed in writing with NRW
	Dust	LCP324 and LCP325 Gas turbines fired on natural gas	None set	None set	6 monthly by calculation	Agreed in writing with NRW
A1, located at Longitude -2.97615 and Latitude 51.54794 and A2 located at Longitude - 2.97552 and Latitude 51.54707. Also marked on the site plan in Schedule 7	Flow and Homogeneity	LCP324 and LCP325 Gas turbines fired on natural gas	No limit set	None set	Pre-operation and when there is a significant operational change	BS EN 15259 & Method Implementation Document for EN 15259.
Flue gas exhaust A3, on site plan in Schedule 7	No parameters set	Auxiliary boiler	None set	None set	None set	None set

**Table S3.1 Point source emissions to air from Gas Turbines >100MWth**

<b>Emission point ref. &amp; location</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)-these limits do not apply during start up or shut down.</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
Diesel exhausts A4 and A5, on site plan in Schedule 7	No parameters set	Emergency diesel generators	None set	None set	None set	None set
Hydrogen vents A6 and A7 on site plan in Schedule 7	No parameters set	The gas and steam turbine generator buildings	None set	None set	None set	None set
Lube oil vents A8 and A9 on site plan in Schedule 7	No parameters set	The gas and steam turbine generator building	None set	None set	None set	None set
Fuel gas vents A10 and A11 on site plan in Schedule 7	No parameters set	The gas and steam turbine generator building	None set	None set	None set	None set
Fuel gas vent A12 on site plan in Schedule 7	No parameters set	Gas compressor house	None set	None set	None set	None set
Fuel gas vents A13 and A14, on site plan in Schedule 7	No parameters set	Gas metering and filter facilities	None set	None set	None set	None set
Boiler blowdown tank vent A15 and A16, on site plan in Schedule 7	No parameters set	HRSG buildings	None set	None set	None set	None set
A17 Diesel firewater pump exhaust, on site plan in Schedule 7	No parameters set	Fire fighting pump house diesel exhause	None set	None set	None set	None set
A18 water heater boiler exhausts, on site plan in Schedule 7	No parameters set	Gas reception facilities	None set	None set	None set	None set

**Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (incl. unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
W1 - The neutralisation pit, on site plan in schedule 7	pH	Process effluents from the water treatment plant and condensate polishing plant.	6-9	Continuous	Immediately prior to batch discharge	BS6068-2.50
W1 - The neutralisation pit, on site plan in schedule 7	Total ammonia	Process effluents from the water treatment plant and condensate polishing plant.	None set	Spot	Monthly	BS EN ISO 11732:2005
W2 – rainwater collection pond, on site plan in schedule 7	No limit set	Surface Water run-off from roofs and roads via an oil/water interceptor.	None set	None set	None set	None set
W3 – process water collection pond	No limit set	Water from the process building sumps, sampling and auxiliary boiler blowdown via an oil/water interceptor.	None set	None set	None set	None set

## Schedule 4 – Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

<b>Table S4.1 Reporting of monitoring data</b>			
<b>Parameter</b>	<b>Emission or monitoring point/reference</b>	<b>Reporting period</b>	<b>Period begins</b>
Oxides of nitrogen	A1, A2,	Every 3 months for continuous monitoring	1 January, 1 April, 1 July, 1 October
Carbon monoxide	A1, A2,	Every 3 months for continuous monitoring	1 January, 1 April, 1 July, 1 October
Sulphur dioxide	A1, A2,	Every 6 months for periodic monitoring	1 January, 1 July
Dust	A1, A2,	Every 6 months for periodic monitoring	1 January, 1 July
Oil and grease	W1	Every 12 months	1 January
pH	W1	Every 12 months	1 January

<b>Table S4.2: Annual production/treatment</b>	
<b>Parameter</b>	<b>Units</b>
Power generated	GWh

<b>Table S4.3 Chapter III Performance parameters for reporting to DEFRA</b>		
<b>Parameter</b>	<b>Frequency of assessment</b>	<b>Units</b>
Thermal Input Capacity for each LCP	Annually	MW
Annual Fuel Usage for each LCP	Annually	TJ
Total Emissions to Air of NO <sub>x</sub> for each LCP	Annually	t
Total Emissions to Air of SO <sub>2</sub> for each LCP	Annually	t
Total Emissions to Air of particulate matter (dust) for each LCP	Annually	t
Operating Hours for each LCP (Load Factor)	Annually	h

<b>Table S4.4 Reporting forms</b>			
<b>Media/ parameter</b>	<b>Reporting format</b>	<b>Form</b>	<b>Date of form</b>
Air & Energy	Appropriate form as detailed in the ESI IED Protocol (as referenced in Schedule 6) or other form as agreed by NRW.	Form IED AR1 – SO <sub>2</sub> , NO <sub>x</sub> and dust mass emission and energy	As agreed with NRW
LCP	Appropriate form as detailed in the ESI IED Protocol Protocol (as referenced in Schedule 6) or other form as agreed by NRW.	Form IED HR1 – operating hours	As agreed with NRW
Air	Appropriate form as detailed in the ESI IED Protocol Protocol (as referenced in Schedule 6) or other form as agreed by NRW.	Form IED CON 2 – continuous monitoring	As agreed with NRW
CEMs	Appropriate form as detailed in the ESI IED Protocol Protocol (as referenced in Schedule 6) or other form as agreed by NRW.	Form IED CEM – invalidation log	As agreed with NRW
Air	Appropriate form as detailed in the ESI IED Protocol Protocol (as referenced in Schedule 6) or other form as agreed by NRW.	Form IED PM1 – discontinuous monitoring and load	As agreed with NRW
Water	Form water 1 or other form as agreed in writing by NRW	Form W1 or other form as agreed in writing by Natural Resources Wales	10/03/2010

# Schedule 5 – Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

## Part A

Permit Number	EPR/HP3737UE
Name of operator	Siemens Energy Limited
Location of Facility	Severn Power Station
Time and date of the detection	

<b>(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution</b>	
<b>To be notified immediately</b>	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

<b>(b) Notification requirements for the breach of a limit</b>	
<b>To be notified immediately otherwise specified below</b>	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	

<b>(b) Notification requirements for the breach of a limit</b>	
<b>To be notified immediately otherwise specified below</b>	
Measures taken, or intended to be taken, to stop the emission	
Time periods for notification following detection of a breach of a limit	
Parameter	Notification period

<b>(c) Notification requirements for the detection of any significant adverse environmental effect</b>	
<b>To be notified immediately</b>	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

## Part B – to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

<b>Name*</b>	
<b>Post</b>	
<b>Signature</b>	
<b>Date</b>	

\* authorised to sign on behalf of the operator

## Schedule 6 – Interpretation

“accident” means an accident that may result in pollution.

“annual average” means the average over a period of one year of validated hourly averages obtained by continuous measurements.

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

“authorised officer” means any person authorised by Natural Resources Wales under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“average over the sampling period” means average value of three consecutive measurements of at least 30 minutes each.

“background concentration” means such concentration of that substance as is present in:

- for emissions to surface water, the surface water quality up-gradient of the site; or
- for emissions to sewer, the surface water quality up-gradient of the sewage treatment works discharge.

“base load” means: (i) as a mode of operation, operating for >4000hrs pa; and (ii) as a load, the maximum load under ISO conditions that can be sustained continuously, i.e. maximum continuous rating.

“black start instruction” means the instruction given by National Grid ESO control room to providers of black start services, in the event of a partial or total electrical grid system shut down.

“breakdown” has the meaning given in the ESI IED Compliance Protocol for Utility Boilers and Gas Turbines.

“calendar monthly mean” means the value across a calendar month of all validated hourly means.

“CEN” means Comité Européen de Normalisation.

“Daily average” means the average over a period of 24 hours of valid hourly averages obtained by continuous measurements.

“disposal”. Means any of the operations provided for in Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“DLN” means dry, low NO<sub>x</sub> burners.

“emissions to land” includes emissions to groundwater.

“Energy efficiency” the annual net plant energy efficiency means the value calculated from the operational data collected over the year.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2010 No.675 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission limit.

“ESI IED Protocol” means ‘Electricity Supply Industry – IED Compliance Protocol for Utility Boilers and Gas Turbines dated December 2015 (as amended)’ or any later version unless otherwise agreed in writing by Natural Resources Wales.

“groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

“Industrial Emissions Directive” means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions.

“large combustion plant” or “LCP” is a combustion plant or group of combustion plants discharging waste gases through a common windshaft or stack, where the total thermal input is 50 MW or more, based on net calorific value. The calculation of thermal input, excludes individual combustion plants with a rated thermal input below 15MW.

“LCP Bref BAT Conclusions” means Commission implementing decision (EU) 2017/1442 of 31 July 2017 establishing best available techniques (BAT) conclusions under Directive 2010/75/EU of the European Parliament and the Council, for large combustion plant, published 17 August 2017.

“malfunction” has the meaning given in the ESI IED Compliance Protocol for Utility Boilers and Gas Turbines.

“MCERTS” means the Environment Agency’s Monitoring Certification Scheme.

“MCR” means maximum continuous rating.

“MSDL” means minimum shut-down load as defined in Implementing Decision 2012/249/EU.

“MSUL” means minimum start-up load as defined in Implementing Decision 2012/249/EU.

“Natural gas” means naturally occurring methane with no more than 20% by volume of inert or other constituents.

“ncv” means net calorific value.

“Net electrical efficiency” means the ratio between the net electrical output (electricity produced minus the imported energy) and the fuel/feedstock energy input (as the fuel/feedstock lower heating value) at the combustion unit boundary over a given period of time.

“NRW” means Natural Resources Wales.

“operational hours” are whole hours commencing from the first unit ending start up and ending when the last unit commences shut down.

“quarter” means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

“SI” means site inspector.

“TNP Register” means the register maintained by the Environment Agency in accordance with regulation 4 of The Large Combustion Plant (Transitional National Plan) Regulations 2015.

“Waste code” means the six digit code referable to a type of waste in accordance with the List of Wastes (England) Regulations 2005, or List of Wastes (Wales) Regulations 2005, as appropriate, and in relation to hazardous waste, includes the asterisk.

“Waste Framework Directive” or “WFD” means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste.

Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

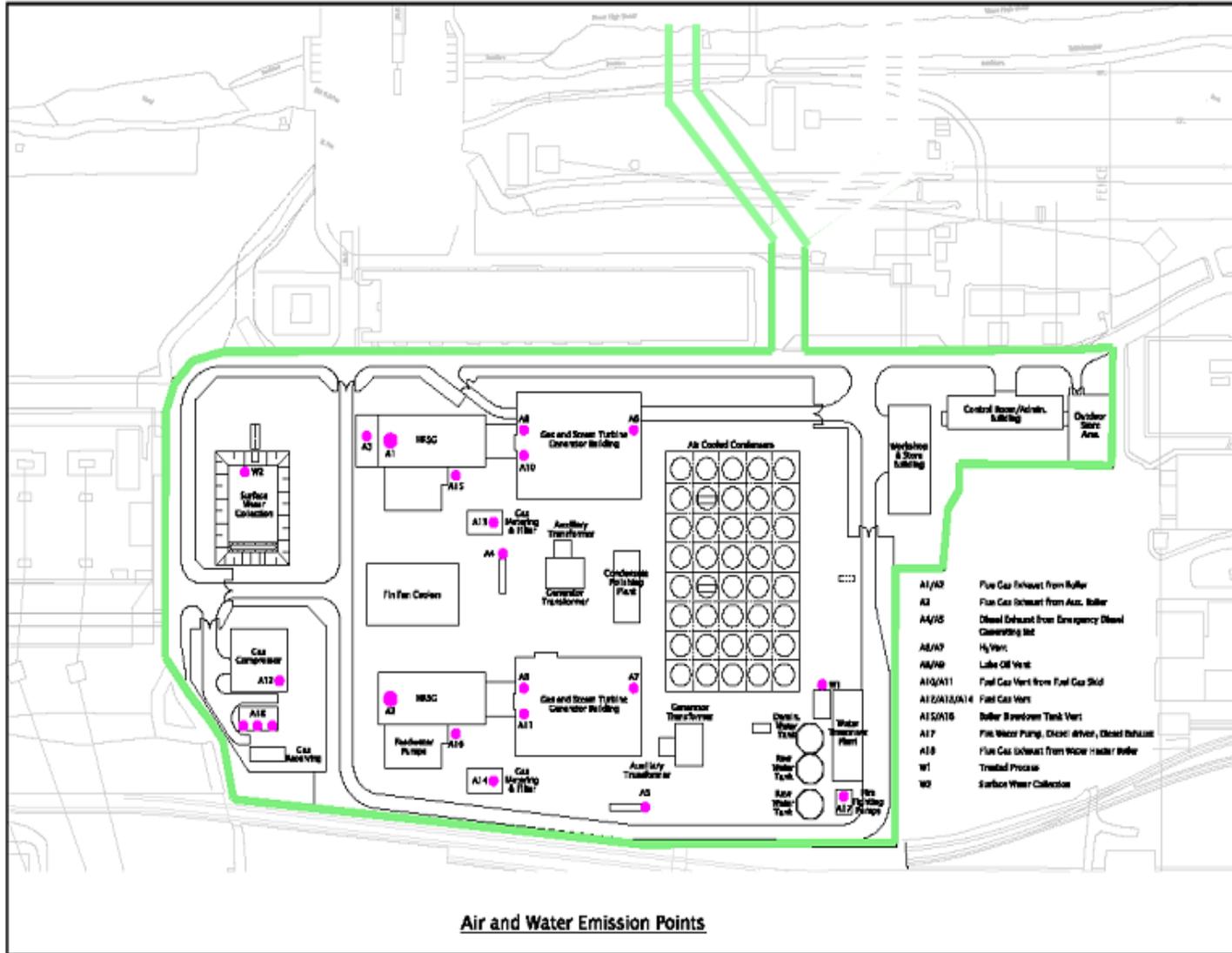
- in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or
- in relation to emissions from gas turbine or compression ignition engine combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3kPa and with an oxygen content of 15% dry for liquid and gaseous fuels; and/or
- in relation to emissions from combustion processes comprising a gas turbine with a waste heat boiler, the concentration in dry air at a temperature of 273K, at a pressure of 101.3kPa and with an oxygen

content of 15% dry, unless the waste heat boiler is operating alone, in which case, with an oxygen content of 3% dry for liquid and gaseous fuels; and/or

- in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

“year” means calendar year ending 31 December.

# Schedule 7 – Site plan



- A1/A2 Flue Gas Exhaust from Boiler
- A3 Flue Gas Exhaust from Aux. Boiler
- A4/A5 Diesel Exhaust from Emergency Diesel Generating Set
- A6/A7 H<sub>2</sub> Vent
- A8/A9 Lube Oil Vent
- A10/A11 Fuel Gas Vent from Fuel Gas Skid
- A12/A13/A14 Fuel Gas Vent
- A15/A16 Boiler Blowdown Tank Vent
- A17 Fuel Water Pump, Diesel #1/2, Diesel Exhaust
- A18 Flue Gas Exhaust from Water Heater Boiler
- W1 Treated Process
- W2 Surface Water Collection

END OF PERMIT