



Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Sembcorp Utilities (UK) Limited

Package Boiler Island
Sembcorp UK Headquarters
Wilton International
Middlesbrough
TS90 8WS

Variation application number

EPR/LP3531UL/V004

Permit number

EPR/LP3531UL

Package Boiler Island

Permit number EPR/LP3531UL

Introductory note

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

Under the Environmental Permitting (England & Wales) Regulations 2016 (schedule 5, part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

Purpose of this variation:

This variation is required to assess the permit for compliance with the revised Best Available Techniques (BAT) Conclusions for the large combustion plant (LCP) sector published on 17 August 2017 including the incorporation of relevant BAT Associated Emission Levels (AELs) into the permit.

Review permit conditions

Article 21(3) of the Industrial Emissions Directive (IED) requires the Environment Agency to review conditions in permits that it has issued and to ensure that the permit delivers compliance with relevant standards, within four years of the publication of updated decisions on BAT Conclusions. We have reviewed the permit for this installation against the revised BAT Conclusions for the LCP sector published on 17 August 2017. Only activities covered by this BAT Reference Document have been reviewed and assessed.

Key changes made as a result of the permit review:

This variation makes the key changes set out below following the permit review under Article 21(3) of the IED and the consolidation of the Environmental Permitting Regulations that came into force on the 4 January 2017:

- Incorporation of the compliance and operating techniques identified in response to the LCP BAT Conclusions, in table S1.2;
- Revised emission limits and monitoring requirements for emissions to air applicable from the BAT Conclusions implementation date, 17 August 2021, in table S3.1a; and
- Inclusion of process monitoring for energy efficiency in table S3.4.

Additional key changes in accordance with IED Chapter II requirements:

- Permit condition 2.3.4 has been added to reference existing table S2.1; and
- Permit condition 2.3.6 has been included in the permit with corresponding improvement condition IC4 requiring the operator to submit a report in relation to potential black start operation of the plant.
- Table S3.2 is amended to remove annual limits for cadmium and mercury present in raw materials at emission point S6 and existing condition 3.1.3 is deleted. Table S4.1 is amended to remove the reporting requirement at emission point S6 and table S4.4 is amended to remove the water reporting form.

Schedule 2 of the notice comprises a consolidated permit which reflects the variations being made. All the conditions of the permit have been varied and are subject to the right of appeal.

Chapter III/Annex V variation EPR/LP3531UL/V003

The requirements of the IED 2010/75/EU are given force in England through the EPR 2016. This permit, for the operation of LCP, as defined by articles 28 and 29 of the IED, already implements the special provisions for LCP given in the IED. The IED makes special provisions for LCP under Chapter III and contains emission limit values (ELVs) applicable to LCP, referred to in Article 30(2) and set out in Annex V.

The Operator chose to operate LCP323 under the emission limit value (ELV) compliance route. This is a change from the previous operating regime which was operation under emission limits determined by an assessment of BAT.

The rest of the installation is unchanged and continues to be operated as follows:

Wilton Package Boiler Island is located within the Wilton International Site, approximately 8km north east of Middlesbrough at national grid reference NZ57112183.

It falls under the following IED Schedule 1 listed activity description:

Section 1.1 Part A(1)(a) – Burning any fuel in an appliance with a rated thermal input of 50 or more megawatts.

The 120 MWth Package Boiler Island installation (LCP323) comprises four 30 MWth gas-fired boilers discharging via four separate flues, within one common windshield at emission point A5. These combustion units provide steam for industry located within the Wilton International site.

The installation produces up to 120 tonnes of intermediate pressure (IP) steam per hour, at 17 barg and 300°C for supply to the Wilton International IP steam distribution system. The boilers are kept warm by sparging with IP steam from the Sembcorp ring main to enable a boiler to be brought fully on line within 20 minutes. Boiler feed water comes from a separate demineralised supply system regulated under the Wilton No. 1 Gas Turbine permit EPR/NP3438LK. Boiler blow-down discharges to Dabholm Gut and then the River Tees, via the Wilton site discharge consent.

Emissions of nitrogen oxides, carbon monoxide and particulates are minimised by combustion control. Emissions of sulphur dioxide are minimised by using natural gas fuel from the National Grid.

The North Yorks Moors Special Area of Conservation (SAC) and Special Protection Area (SPA) and the Teesmouth & Cleveland Coast SPA and RAMSAR are within 15km of the installation. The installation does not have an adverse effect on any sensitive receptors.

At the time of variation EPR/LP3531UL/V004, the site was working towards ISO 14001 certification of the sites Environmental Management System (EMS). The EMS is integrated into the other Sembcorp Utilities sites on Wilton.

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/LP3531UL/A001	15/10/2007	Duly made
Additional information received	13/02/2008	
Permit determined EPR/LP3531UL	21/07/2008	
Variation application EPR/LP3531UL/V002	20/09/2010	Duly made
Additional information received	28/09/2010 02/11/2010	
Variation determined EPR/LP3531UL/V002	14/12/2010	
Regulation 60 Notice sent to the Operator	31/10/2014	Issue of a Notice under Regulation 60(1) of the EPR. Environment Agency 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	31/03/2015	Response received from the Operator.
Additional information received	07/08/2015	Response to request for further information dated 25/06/2015.
Variation determined EPR/LP3531UL/V003	18/12/2015	Varied and consolidated permit issued in modern condition format. Variation effective from 01/01/2016.
Regulation 61 Notice sent to the Operator	01/05/2018	Issue of a Notice under Regulation 61(1) of the EPR. Environment Agency initiated review and variation to vary the permit under IED to implement Chapter II following the publication of the revised BAT Reference Document for LCP.
Regulation 61 Notice response	19/03/2019	Response received from the Operator.
Additional information received	13/03/2020	Response to request for further information sent 28/01/2020. BAT Conclusions 1, 2, 5, 10, 12, 13, 15, 16, 40, 41 and 44.
Additional information received	01/04/2020	BAT Conclusions 40 and 44.
Additional information received	04/05/2020	Thermal input.
Additional information received	05/05/2020	Energy efficiency.
Variation determined EPR/LP3531UL/V004 (Billing ref: UP3302BC)	26/05/2020	Varied and consolidated permit issued.

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2016

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 varies and consolidates

Permit number

EPR/LP3531UL

Issued to

Sembcorp Utilities (UK) Limited (“the operator”)

whose registered office is

**Sembcorp UK Headquarters
Wilton International
Middlesbrough
Cleveland
TS90 8WS**

company registration number **4636301**

to operate a regulated facility at

**Package Boiler Island
Sembcorp UK Headquarters
Wilton International
Middlesbrough
TS90 8WS**

to the extent set out in the schedules.

The notice shall take effect from 26/05/2020

Name	Date
Anne Lloyd	26/05/2020

Authorised on behalf of the Environment Agency

Schedule 1

All conditions have been varied by the consolidated permit as a result of an Environment Agency initiated variation.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/LP3531UL

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/LP3531UL/V004 authorising,

Sembcorp Utilities (UK) Limited (“the operator”),

whose registered office is

**Sembcorp UK Headquarters
Wilton International
Middlesbrough
Cleveland
TS90 8WS**

company registration number **4636301**

to operate an installation at

**Package Boiler Island
Sembcorp UK Headquarters
Wilton International
Middlesbrough
TS90 8WS**

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

Name	Date
Anne Lloyd	26/05/2020

Authorised on behalf of the Environment Agency

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.

1.3 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 red 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 the Environment Agency.
- 2.3.2 For activity AR1 referenced in schedule 1, table S1.1: LCP323. The activities shall be operated in accordance with the “Electricity Supply Industry IED Compliance Protocol for Utility Boilers and Gas Turbines” dated December 2015 or any later version unless otherwise agreed in writing by the Environment Agency.
- 2.3.3 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency 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 the Environment Agency.
- 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 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 The emission limit values from emission point A5 listed in tables S3.1 and S3.1a of schedule 3 of this permit, following the issue of a Black Start Instruction by the National Grid shall be disregarded for the purposes of compliance whilst that instruction remains effective and in accordance with the report submitted in response to improvement condition IC4.
- 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 the Environment Agency.
- 2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency 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, S3.1a 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 the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency 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 the Environment Agency.
- 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 the Environment Agency, 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 the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency 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 the Environment Agency.

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 the Environment Agency, 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 the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency 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 the Environment Agency.

3.5 Monitoring

- 3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:
- (a) point source emissions specified in tables S3.1, S3.1a and S3.2;
 - (b) noise specified in table S3.3; and
 - (c) process monitoring specified in table S3.4.
- 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 the Environment Agency.
- 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, S3.1a and S3.2 unless otherwise agreed in writing by the Environment Agency.

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 Large Combustion Plant Best Available Techniques 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 the Environment Agency 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 the Environment Agency 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 the Environment Agency.
- 3.6.6 Where required by a condition of this permit to check the measurement equipment, the operator shall submit a report to the Environment Agency 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 and S3.1a; 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 and S3.1a the validated hourly, daily, monthly and yearly 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 the Environment Agency, 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 the Environment Agency.

4.2 Reporting

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

4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) 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;
- (b) the resource efficiency metrics 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.

4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, 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 the Environment Agency, 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 the Environment Agency,
 - (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 the Environment Agency, 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 the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency 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.

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) the Environment Agency 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 The Environment Agency 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, the Environment Agency 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 the Environment Agency 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

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
AR1	Section 1.1 Part A(1)(a) Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more.	LCP323 120 MWth package boiler island comprising four gas-fired boilers each a 30 MWth, for the production of steam.	From receipt of natural gas to discharge of exhaust gases and wastes, and the generation of steam for export.
Directly Associated Activity			
AR2	Directly associated activity	Storage and handling of raw materials and wastes.	From receipt of raw materials to dispatch of waste.
AR3	Directly associated activity	Operation of systems for supply of utilities and services such as hot water, refrigeration, compressed air and electricity.	Utilities and services systems within the installation boundary.
AR4	Directly associated activity	Surface water drainage.	Handling and storage of site drainage until discharge to the site surface water system.

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application EPR/LP3531UL/A001	Sections 2.1 and 2.2 of the application document.	15/10/2007
Request for further information dated 29/01/2008	Response to question 1 directly associated activities, and question 2 concerning emissions to water.	13/02/2008
Variation application EPR/LP3531UL/V002	Package Boiler Island – Application for permit variation dated 06 September 2010 excluding section 2 of Part C3 of the application form.	20/09/2010
Request for further information dated 22/09/2010	Response dated 28 September 2010 via e-mail at 14.48.	28/09/2010
Request for further information dated 05/10/2010	Response dated 02 November 2010 via e-mail at 10.22.	02/11/2010
Response to improvement condition IC1	Sections relating to verification of emissions data and noise assessment.	25/08/2008
Responses to pre-operational conditions 1, 2 and 3	All sections of the responses covering site security, minimising noise emissions from the two flash vessel vents, the methodology for a noise survey and a procedure to ensure that testing of the vents will be carried out to minimise impact on local receptors.	07/12/2011

Table S1.2 Operating techniques		
Description	Parts	Date Received
Response to regulation 60(1) Notice – request for information dated 31/10/2014	Compliance route and operating techniques identified in response to questions 335 (compliance route), 337 (configuration of LCP), 338 (net rated thermal input), 339 (MSUL-MSDL), 340 (proposed ELVs).	31/03/2015
Request for further information	Remove references to B5, B6, B7, SABIC gas and stand-by fuels; CCGT confirmation.	29/04/2015
Receipt of additional information to the regulation 60(1) Notice requested by letter dated 25/06/2015	Response to question 6 requesting no consolidation with two other permits for GT2 and GT1.	07/08/2015
Receipt of additional information to the regulation 60(1) Notice requested by email dated 29/10/2015	Confirmation of the proposed elvs.	10/11/2015
Response to regulation 61(1) Notice – request for information dated 01/05/2018 EPR/LP3531UL/V004	Compliance and operating techniques identified in response to the BAT Conclusions for LCP published on 17 August 2017.	19/03/2019
Response to request for further information sent 28/01/2020 EPR/LP3531UL/V004	Compliance and operating techniques identified in response to BAT Conclusions 1, 2, 5, 10, 12, 13, 15, 16, 40, 41 and 44 for LCP published on 17 August 2017.	13/03/2020
Additional information received EPR/LP3531UL/V004	Compliance and operating techniques identified in response to BAT Conclusions 40 and 44 for LCP published on 17 August 2017.	01/04/2020

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC1	<p>Following the commissioning of the plant, the Operator shall submit to the Agency a report detailing the outcome of the commissioning programme. The report shall include the following:</p> <ul style="list-style-type: none"> • verification of the emissions data provided in the application to air and water; • an assessment of the impact of noise (to verify the information provided in the application) associated with the operation of the installation on local receptors during both daytime and night-time periods. 	Complete
IC2	<p>The operator shall provide a report in writing to the Environment Agency for acceptance which provides the net rated thermal input for LCP 323. The net rated thermal input is the 'as built' value unless the plant has been modified significantly resulting in an improvement of the plant efficiency or output that increases the rated thermal input (which typically requires a performance test to demonstrate that guaranteed improvements have been realised).</p> <p>Evidence to support this figure, in order of preference, shall be in the form of:-</p> <ol style="list-style-type: none"> a) Performance test results* during contractual guarantee testing or at commissioning (quoting the specified standards or test codes), b) Performance test results after a significant modification (quoting the specified standards or test codes), c) Manufacturer's contractual guarantee value, d) Published reference data, e.g., Gas Turbine World Performance Specifications (published annually); e) Design data, e.g., nameplate rating of a boiler or design documentation for a burner system; f) Operational efficiency data as verified and used for heat accountancy purposes, g) Data provided as part of Due Diligence during acquisition, <p>*Performance test results shall be used if these are available.</p>	Complete
IC3	<p>For LCPD LCP 269 (now LCP 323 under IED). Annual emissions of dust, sulphur dioxide and oxides of nitrogen including energy usage for the year 01/01/2015 to 31/12/2015 shall be submitted to the Environment Agency using form AAE1 via the NERP Registry. If the LCPD LCP was a NERP plant the final quarter submissions shall be provided on the RTA 1 form to the NERP Registry.</p>	Complete
IC4	<p><u>Black start operations</u></p> <p>A written report shall be submitted to the Environment Agency for approval. The report shall contain an impact assessment demonstrating that there is no significant environmental risk associated with black start operations and propose a methodology for minimisation of environmental impact during such a period of operation and for reporting instances of black start operation.</p> <p>The plant shall be operated as set out in condition 2.3.6 of the permit once the report has been approved by the Environment Agency. The methodology for operation and reporting set out in the report shall be implemented by the operator from the date of approval by the Environment Agency.</p>	31/05/2021

Table S1.4 Start-up and Shut-down thresholds		
Emission Point and Unit Reference	“Minimum Start-Up Load” Steam flow rate in tonnes and as percent of rated thermal output (%)	“Minimum Shut-Down Load” Steam flow rate in tonnes and as percent of rated thermal output (%)
A5 LCP323	7te steam; 25%	7te steam; 25%

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
Natural gas	-

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – emission limits and monitoring requirements shall apply until 16 August 2021						
Emission point ref. & location Note 1	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A5	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	LCP323 Boiler plant fired on natural gas	100 mg/m ³	Calendar monthly mean	Continuous	BS EN 14181
			100 mg/m ³	Daily mean of validated hourly averages	Continuous	BS EN 14181
			100 mg/m ³	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A5	Carbon monoxide	LCP323 Boiler plant fired on natural gas	50 mg/m ³	Calendar monthly mean	Continuous	BS EN 14181
			50 mg/m ³	Daily mean of validated hourly averages	Continuous	BS EN 14181
			50 mg/m ³	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A5	Sulphur dioxide	LCP323 Boiler plant fired on natural gas	35mg/m ³	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
A5	Dust	LCP323 Boiler plant fired on natural gas	5mg/m ³	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
A5	Oxygen	LCP323 Boiler plant fired on natural gas	-	-	Continuous As appropriate to reference	BS EN 14181
A5	Water vapour	LCP323 Boiler plant fired on natural gas	-	-	Continuous As appropriate to reference	BS EN 14181

Table S3.1 Point source emissions to air – emission limits and monitoring requirements shall apply until 16 August 2021						
Emission point ref. & location Note 1	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A5	Stack gas temperature	LCP323 Boiler plant fired on natural gas	-	-	Continuous As appropriate to reference	Traceable to national standards
A5	Stack gas pressure	LCP323 Boiler plant fired on natural gas	-	-	Continuous As appropriate to reference	Traceable to national standards
A5	As required by the Method Implementation Document for BS EN 15259	LCP323 Boiler plant fired on natural gas	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
Note 1: Windshield 1 containing boiler stacks A1 to A4.						

Table S3.1a Point source emissions to air – emission limits and monitoring requirements shall apply from 17 August 2021						
Emission point ref. & location Note 1	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A5	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	LCP323 Boiler plant fired on natural gas	100 mg/m ³	Yearly average	Continuous	BS EN 14181
			100 mg/m ³	Calendar monthly mean	Continuous	BS EN 14181
			100 mg/m ³	Daily mean of validated hourly averages	Continuous	BS EN 14181
			100 mg/m ³	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A5	Carbon monoxide	LCP323 Boiler plant fired on natural gas	40 mg/m ³	Yearly average	Continuous	BS EN 14181
			50 mg/m ³	Calendar monthly mean	Continuous	BS EN 14181
			50 mg/m ³	Daily mean of validated hourly averages	Continuous	BS EN 14181
			50 mg/m ³	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A5	Sulphur dioxide	LCP323 Boiler plant fired on natural gas	35mg/m ³	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
A5	Dust	LCP323 Boiler plant fired on natural gas	5mg/m ³	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
A5	Oxygen	LCP323 Boiler plant fired on natural gas	-	-	Continuous As appropriate to reference	BS EN 14181
A5	Water vapour	LCP323 Boiler plant fired on natural gas	-	-	Continuous As appropriate to reference	BS EN 14181

Table S3.1a Point source emissions to air – emission limits and monitoring requirements shall apply from 17 August 2021						
Emission point ref. & location Note 1	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A5	Stack gas temperature	LCP323 Boiler plant fired on natural gas	-	-	Continuous As appropriate to reference	Traceable to national standards
A5	Stack gas pressure	LCP323 Boiler plant fired on natural gas	-	-	Continuous As appropriate to reference	Traceable to national standards
A5	Stack gas volume flow	LCP323 Boiler plant fired on natural gas	-	-	Continuous	BS EN 16911
A5	As required by the Method Implementation Document for BS EN 15259	LCP323 Boiler plant fired on natural gas	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
Note 1: Windshield 1 containing boiler stacks A1 to A4.						

Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point ref. & location	Parameter	Source	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method
S6 ^{Note 1}	No parameters set	Boiler blowdown	-	-	-	-
Note 1: Emission to Dabholm Gut (shown on fig 2.2-1 of application EPR/LP3531UL/A001 as the point at which the drain leading to S6 leaves the installation boundary.						

Table S3.3 Noise monitoring requirements				
Location or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Perimeter noise survey using methodology agreed with the Environment Agency	Noise	6 monthly	BS 4142:2014	

Table S3.4 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
LCP323	Net total fuel utilisation	After each modification that could significantly affect these parameters	EN Standards or equivalent	-

Schedule 4 – Reporting

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

Table S4.1 Reporting of monitoring data			
Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Oxides of nitrogen	A5	Every 3 months	1 January, 1 April, 1 July, 1 October
		Every year	1 January
Carbon monoxide	A5	Every 3 months	1 January, 1 April, 1 July, 1 October
		Every year	1 January
Sulphur dioxide	A5	Every 12 months	1 January
Dust	A5	Every 12 months	1 January
Noise monitoring Parameters as required by condition 3.5.1	Noise survey	Every 12 months	1 January

Table S4.2: Annual production/treatment	
Parameter	Units
Power generated	GWhr
Intermediate Pressure steam generated	Tonnes

Table S4.3 Large Combustion Plant performance parameters for reporting to DEFRA and other performance parameters		
Parameter	Frequency of assessment	Units
Thermal Input Capacity for each LCP	Annually	MW
Annual Fuel Usage for each LCP	Annually	TJ
Total Emissions to Air of NO _x for each LCP	Annually	tonnes
Total Emissions to Air of SO ₂ for each LCP	Annually	tonnes
Total Emissions to Air of Dust for each LCP	Annually	tonnes
Operating Hours for each LCP (Load Factor)	Annually	hours

Table S4.4 Reporting forms		
Media/ parameter	Reporting format	Agency recipient
Air & Energy	Form IED AR1 – SO ₂ , NO _x and dust mass emission and energy Form as agreed in writing by the Environment Agency.	National and Area Office
LCP	Form IED HR1 – operating hours Form as agreed in writing by the Environment Agency.	National and Area Office
Air	Form IED CON 1 – continuous monitoring Form as agreed in writing by the Environment Agency.	Area Office
CEMs	Form IED CEM – Invalidation Log Form as agreed in writing by the Environment Agency.	Area Office
Air	Form IED PM1 - discontinuous monitoring and load. Form as agreed in writing by the Environment Agency.	Area Office
Other performance indicators	Form performance 1 Form as agreed in writing by the Environment Agency.	Area Office

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/LP3531UL
Name of operator	Sembcorp Utilities (UK) Limited
Location of Facility	Package Boiler Island, Wilton International
Time and date of the detection	

(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	
To be notified within 24 hours of detection	
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) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	
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

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
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.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

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

“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 the Environment Agency 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.

“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” means the procedure to recover from a total or partial shutdown of the UK Transmission System which has caused an extensive loss of supplies. This entails isolated power stations being started individually and gradually being reconnected to other power stations and substations in order to form an interconnected system again.

“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.

“Combustion Technical Guidance Note” means IPPC Sector Guidance Note Combustion Activities, version 2.03 dated 27th July 2005 published by Environment Agency.

“daily average” means the average over a period of 24 hours of validated 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_x 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 2016 No.1154 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 or background concentration limit.

“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 windshield 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.

“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 total fuel utilisation” means the ratio between the net produced energy minus the imported electrical and/or thermal energy and the fuel energy input at the combustion unit boundary over a given period of time.

“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.

“recovery” means any of the operations provided for in Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“SI” means site inspector.

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.

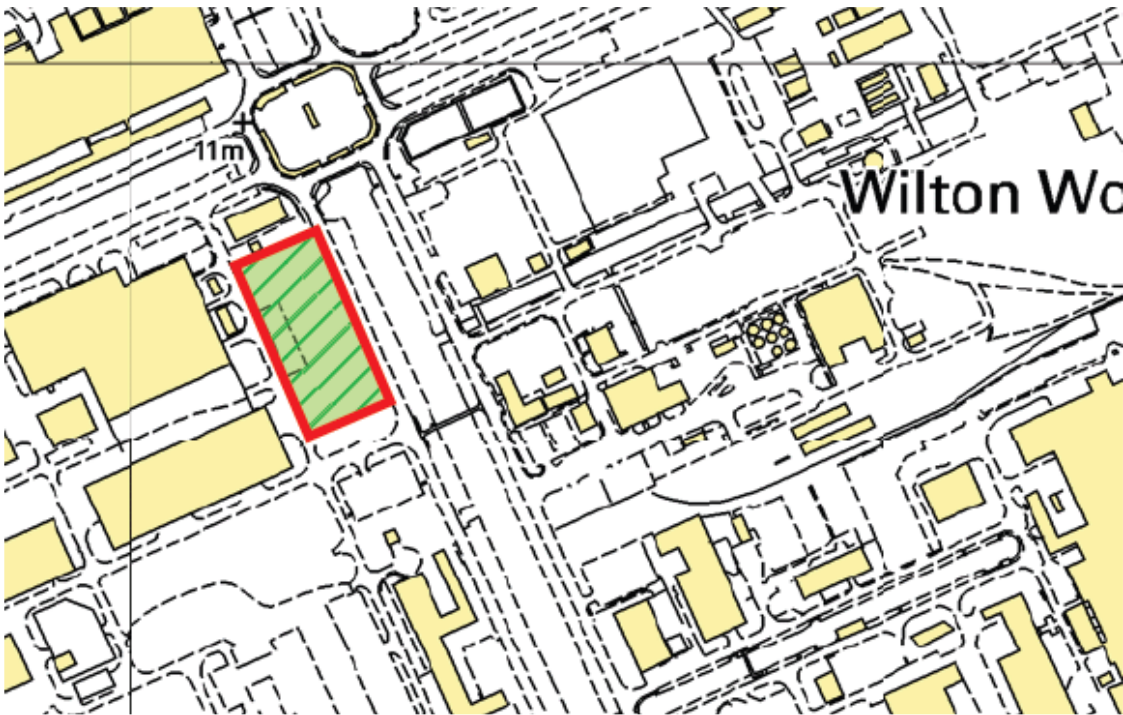
Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

- 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 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.

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

Schedule 7 – Site plan



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