



Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

VPI Immingham LLP
Immingham CHP Power Plant
Rosper Road
Immingham
North Lincolnshire
DN40 3DZ

Variation application number

EPR/BJ8022IZ/V012

Permit number

EPR/BJ8022IZ

Immingham CHP Power Plant

Permit number EPR/BJ8022IZ

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.

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.

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 Best Available Techniques (BAT) Conclusions. We have reviewed the permit for this installation against the revised BAT Conclusions for the large combustion plant sector published on 17th August 2017. Only activities covered by this BAT Reference Document have been reviewed and assessed.

This variation makes the below changes following the 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:

- Revised emission limits and monitoring requirements for emissions to air applicable from 17 August 2021 in table S3.1a;
- An improvement condition requiring the installation of pressure devices for continuous measurement of pressure in the flues of GT/HRSG 1 and GT/HRSG 2 by 2021;
- Inclusion of process monitoring for energy efficiency in table S3.4.

Permit condition 2.3.9 has been included in the permit with corresponding improvement condition IC20 requiring the operator to submit a report in relation to potential black start operation of the plant.

Also, multi-fuel emission limits have been specified in tables S3.1 and S3.1a of the permit and an improvement condition requiring the operator to submit a Multi-Fuel Firing Plan has been specified.

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

The site (national grid reference: TA1668717150) is predominantly surrounded by industrial areas with the nearest human dwelling approximately 420 m to the east of the site boundary. The Humber Estuary Ramsar, Special Area of Conservation (SAC), Special Protection Area (SPA) and Site of Special Scientific Interest (SSSI) site is 1.4 km to the east of the site boundary and there are a number of Local Wildlife Sites within 2 km of the installation.

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 installation consists of a combined heat and power plant (CHP), to supply steam to two adjacent oil refineries with the option for future potential local industries, and electricity to one of the adjacent refineries and to the National Grid.

The CHP comprises two LCPs, as defined by articles 28 and 29 of the IED: LCP188 and LCP415.

LCP188 comprises two sets of gas turbines (GTs) with rated thermal inputs of 730 and 743 MWth with associated heat recovery steam generating (HRSG) boilers each with rated thermal inputs of 111 MWth, and two auxiliary boilers (290 & 290 MWth nominal) for backup steam supplies if any of the other CHP capacity are unavailable.

LCP415 comprises one GT (751 MWth) with associated HRSG boiler (193 MWth). The steam generated by combustion plants is expanded through three steam turbines.

Electricity is generated by the electrical generator of the gas turbine combusting fuel gas. The hot exhaust gas then passes through an associated HRSG boiler to raise steam which can then be passed through a steam turbine with generator attached to generate additional electricity. Additional fuel can be burned in the HRSG boiler supplementary burners to supply steam to customers in excess of that resulting from electricity generation.

All GTs and HRSG boilers use natural gas only for start-up and shut-down. LCP188 GTs (GT1 and GT2) and HRSG boilers (HRSG1 and HRSG2) also burn natural gas only. LCP415 GT (GT3) uses natural gas only. All three HRSG boilers' supplementary burners use natural gas only for start-up and shut-down and LCP415 HRSG (HRSG3) also uses natural gas or refinery off-gas (ROG) for normal operations. The auxiliary boilers associated with LCP188 use natural gas for start-up and are normally on hot standby using natural gas or ROG. The auxiliary boilers are kept on hot standby ready to ramp up to maintain the steam demand in the event of loss of operating steam generating units. Distillate oil can be used as a fuel in the auxiliary boilers if there is a natural gas interruption. Distillate oil is not used as a fuel for the other combustion units.

Emissions to air from the combustion process of oxides of nitrogen (NO_x) are minimised using low NO_x combustion technology. Emissions of sulphur dioxide (SO₂) are controlled by setting a sulphur specification of the fuel. Emissions of carbon monoxide (CO) are minimised by efficient fuel use in excess air (oxygen (O₂)). These emissions are released to atmosphere via four flues (emission points A1, A2, A3, A4) in a 90m high windshield for LCP188 and a single 90 m high stack (emission point A5) for LCP415. Releases to air by these stacks ensure compliance with Air Quality Standards.

LCP415 steam turbine is cooled using an air cooled condenser to minimise water use.

Raw water is required to produce demineralised water to replace condensate that cannot be recovered. Treated waste water from one of the refineries is processed in the water treatment plant and used in the cooling water circuit. The water discharged from the process is predominantly blowdown from the cooling water circuit to prevent a build-up of dissolved solids, which result from evaporative losses from the hybrid cooling towers which serve LCP188.

Releases to water from the process are discharged via one outfall (W1) into the South Killingholme drain. The discharge comprises process water and surface water arising during rainfall.

VPI Immingham LLP has an Environmental Management System externally certified to ISO 14001:2015, which is also regularly internally audited as per the ISO 14001 standard.

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/BJ8022IZ/A001	Received 08/02/01	Application for a new CHP Power Plant.
Permit determined EPR/BJ8022IZ (PAS Billing ref. BJ8022IZ)	16/08/01	Permit issued to Immingham CHP Ltd.
Transfer application EPR/BJ8022IZ/T002	27/03/03	Transfer application to Immingham CHP LLP.
Transfer application determined EPR/BJ8022IZ/T002 (PAS Billing ref. BU6140IT)	01/05/03	Transfer issued to Immingham CHP LLP.
Application variation EPR/BJ8022IZ/V003	Received 23/07/04	Application to implement detailed design changes and LCPD conditions.

Status log of the permit		
Description	Date	Comments
Variation determined EPR/BJ8022IZ/V003 (PAS Billing ref. NP3130BP)	28/10/04	Varied permit issued to Immingham CHP LLP.
Application variation EPR/BJ8022IZ/V004	Received 04/01/06	Application for 'Phase II' development including new Gas turbine/Heat Recovery Steam Generator 3 and new steam turbine.
Variation determined EPR/BJ8022IZ/V004 (PAS Billing ref. NP3339LK)	30/04/07	Varied permit issued to Immingham CHP LLP.
Simple standard variation application EPR/BJ8022IZ/V005	Received 31/03/09	Application to implement changes to the design of 'Phase II' effluent handling.
Additional information received	29/05/09	Additional information on operating techniques.
Variation determined EPR/BJ8022IZ/V005 (PAS Billing ref. YP3837GD)	04/06/09	Varied permit issued to Immingham CHP LLP.
Notified of change of company name and registered office address	12/11/14	Name changed to VPI Immingham LLP.
Variation determined EPR/BJ8022IZ/V006 (PAS Billing ref. PP3432WT)	14/11/14	Varied permit issued to VPI Immingham LLP.
Regulation 60 Notice sent to the Operator	17/12/14	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	27/03/15	Response received from the Operator dated 27/03/15.
Regulation 60 Notice, request for additional information	Requested 05/06/15	Letter requesting further information sent.
Additional information received	29/06/15	Response to request for further information.
Additional information received	04/08/15	Further information received.
Additional information received	27/11/15	Information received relating to the net rated thermal input.
Variation determined EPR/BJ8022IZ/V007 (PAS Billing ref: XP3732RA)	29/12/15	Varied and consolidated permit issued in modern condition format. Variation effective from 01/01/16.
Additional information received	17/11/16	Response to Improvement Condition 16 regarding net rated thermal inputs.
Application variation EPR/BJ8022IZ/V008	Withdrawn 19/12/17	Application withdrawn and superseded by application for variation EPR/BJ8022IZ/V009.
Application variation EPR/BJ8022IZ/V009	Returned 31/01/18	Application returned as not duly made.

Status log of the permit		
Description	Date	Comments
Application variation EPR/BJ8022IZ/V010	Duly made 08/03/18	Application for upgrades to two gas turbines associated with LCP188 including conversion to Dry Low NO _x (DLN) 2.6+ low pressure drop combustion system, Advanced Gas Path upgrade and installation of a range of OpFlex products including resultant change to dynamic MSUL and MSDL.
Regulation 61 Notice sent to the Operator	01/05/18	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 Best Available Techniques (BAT) Reference Document for large combustion plant.
Variation determined EPR/BJ8022IZ/V010 (Billing ref: MP3431JE)	12/07/18	Varied and consolidated permit issued in modern condition format.
Regulation 61 Notice response	30/08/18	Response received from the Operator.
Application variation EPR/BJ8022IZ/V011	Duly made 12/08/19	Variation application to amend the MSUL and MSDL points for GT1, GT2 and Auxiliary Boilers 1 and 2 of LCP 188.
Additional information received	28/10/19	Additional information: revised proposal for MSUL and MSDL points for GT1, GT2 and Auxiliary Boilers 1 and 2 of LCP 188.
Variation determined EPR/BJ8022IZ/V011 (Billing ref: JP3336QL)	14/11/19	Varied and consolidated permit issued.
Regulation 61 Notice sent to the Operator	19/11/19	Issue of a Notice under Regulation 61(1) of the EPR. Request for additional information on the Environment Agency initiated review and variation to vary the permit under IED to implement Chapter II following the publication of the revised Best Available Techniques (BAT) Reference Document for large combustion plant, the applicable requirements of the revised Best Available Techniques (BAT) Reference Document for refining of mineral oil and gas and operating techniques for combustion of multi-fuels.
Regulation 61 Notice response	20/12/19	Response received from the Operator.
Additional information received	05/02/2020	Additional information and clarification on the Regulation 61 Notice responses received on 20/12/19.
Additional information received	18/02/2020	Confirmation of operation in accordance with Joint Environmental Programme (JEP) document 'Characterisation of power plant fuels for compliance with LCP BREF Conclusion BAT 9'.
Variation determined EPR/BJ8022IZ/V012 (Billing ref: MP3700BK)	28/02/2020	Varied and consolidated permit issued. Effective from 28/02/2020

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

Permit number

EPR/BJ8022IZ

Issued to

VPI Immingham LLP (“the operator”)

whose registered office is

**4th Floor, Nova South
160 Victoria Street
London
SW1E 5LB**

company registration number **OC300980**

to operate a regulated facility at

**Immingham CHP Power Plant
Rosper Road
Immingham
North Lincolnshire
DN40 3DZ**

to the extent set out in the schedules.

The notice shall take effect from 28/02/2020

Name	Date
Simon Hunt	28/02/2020

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/BJ8022IZ

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/BJ8022IZ/V012 authorising,

VPI Immingham LLP (“the operator”),

whose registered office is

**4th Floor, Nova South
160 Victoria Street
London
SW1E 5LB**

company registration number **OC300980**

to operate a regulated facility at

**Immingham CHP Power Plant
Rosper Road
Immingham
North Lincolnshire
DN40 3DZ**

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

Name	Date
Simon Hunt	28/02/2020

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 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 the Environment Agency.
- 2.3.2 For the following activities referenced in schedule 1, table S1.1: LCP188 and LCP 415. 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 For the following activities referenced in schedule 1, table S1.1: LCP188 Auxiliary Boilers AB1 and AB2. Standby fuel gas oil may be used but for no more than 500 hours per year.
- 2.3.6 For the following activities referenced in schedule 1, table S1.1: LCP188 Auxiliary Boilers AB1 and AB2. Standby fuel gas oil may be used for periods of up to 10 days during times of interruption to the gas supply.
- 2.3.7 For the following activities referenced in schedule 1, table S1.1: LCP188 and LCP415. 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.
- 2.3.8 For the following activities referenced in schedule 1, table S1.1: LCP188 (GT1, GT2) and LCP415 (GT3). The effective Dry Low NOx threshold shall conform to the specifications set out in Schedule 1, tables S1.2 and S1.5.
- 2.3.9 The emission limit values from emission point(s) A1, A2, A3, A4 and A5 listed in tables S3.1 and S3.1a of Schedule 3 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 IC21.

- 2.3.10 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.
- 2.3.11 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; and
- (b) 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, monthly, yearly 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 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;
- (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 apply the hours of operation in any year; and
- (e) where condition 2.3.6 applies, the start date and time, and the days and hours of operation for each period of standby fuel operation.

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), 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.

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) 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.	<p>Production of electrical power and steam in a Combined Heat and Power (CHP) plant comprising the following LCPs:</p> <p>LCP188</p> <ul style="list-style-type: none"> - Gas turbine (GT1) and Heat Recovery Steam Generator (HRSG1), CCGT mode, GT1: 730 MWth, natural gas fired; HRSG1: 111 MWth, natural gas supplementary firing. - Gas turbine (GT2) and Heat Recovery Steam Generator (HRSG2), CCGT mode, GT2: 743 MWth, natural gas fired; HRSG2: 111 MWth, natural gas supplementary firing. - Two Auxiliary Boilers AB1 & AB2 for production of steam, 290MWth each, fired by natural gas and/or refinery off-gas (ROG) or gas oil as stand-by fuel. <p>LCP415</p> <ul style="list-style-type: none"> - Gas turbine (GT3) and Heat Recovery Steam Generator (HRSG3), CCGT mode, GT3: 751 MWth, natural gas fired; HRSG3: 193 MWth, natural gas and/or ROG supplementary firing. 	From receipt of natural gas, ROG or gas oil to discharge of exhaust gases and wastes, and the generation of electricity and steam for export.
Directly Associated Activity			
AR2	Directly associated activity	Processing of raw water to produce water of quality fit for use in LCP188 cooling tower system and process waters from the refineries being demineralised for demineralised water production.	Treatment of water supplied from the adjacent oil refinery for use in the LCP.
AR3	Directly associated activity	Oil storage	From receipt of raw materials to dispatch for use.
AR4	Directly associated activity	Surface water drainage	Handling and storage of site drainage until discharge to the site surface water system, and discharge to the South Killingholme Drain.

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
AR5	Directly associated activity	Water treatment	From receipt of raw materials to dispatch to chemical effluent and waste water system.

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application EPR/BJ8022IZ/A001	The response to questions 2.3 given in pages 19-27 of the application.	08/02/01
Variation application EPR/BJ8022IZ/V003	Ref. Psm274V2	July 04
Variation application EPR/BJ8022IZ/V004	Ref. 221924	Jan 06
Variation application EPR/BJ8022IZ/V004 Supplementary information	Ref. 221490	Oct 06
Variation application EPR/BJ8022IZ/V004 Supplementary information	Ref. 221490	Jan 07
Variation application EPR/BJ8022IZ/V005	Ref. Immingham CHP SSV01	31/03/09
Supplementary information EPR/BJ8022IZ/V005	Ref. Immingham CHP SSV01 rev B and CHP/SH/017	29/05/09
Response to regulation 60(1) Notice – request for information dated 17/12/14	Compliance route(s) and operating techniques identified in response to questions 1 (the DEFRA LCP identifier for each LCP plant and it's date of operational commencement), 2 (for each LCP state which compliance route you have selected), 3 (provide evidence of any notification you have already made in relation to the TNP or LLD), 5 (the net rated thermal input of the LCP and the method by which it was derived), 6 (details of the derivation of minimum start-up load and minimum shut-down load), 7 (provide your proposed emission limit values), 8 (do you wish to apply for the derogation not to undertake monitoring when on standby fuels).	27/03/15
Receipt of additional information to the regulation 60(1) Notice. requested by letter dated 05/06/15	Compliance route(s) and operating techniques identified in response to questions 1 (date of operational commencement of each LCP), 2 (rated thermal input), 6 (details of the derivation of minimum start-up load and minimum shut-down load), 7 (provide justification for the emission limit values requested), 8 (provide justification for the Article 30(6) derogation).	29/06/15

Table S1.2 Operating techniques		
Description	Parts	Date Received
Receipt of additional information to the regulation 60(1) Notice.	An update to the introductory note describing the installation. An update to waste stored on site. A new definition of raw materials and fuels. Details of the fuel option for the combustion units. Start-up and shut-down thresholds. IED emission limit values and monitoring requirements.	04/08/15
Receipt of additional information in response to Improvement Condition 16.	Net rated thermal inputs for gas turbines associated with each LCP and auxiliary boilers associated with LCP188.	17/11/16
Variation application EPR/BJ8022IZ/V010	The response to question 6 (environmental risk assessment) of the Part C2 application form and referenced supporting documents 012 and 013. The responses to questions 3a (technical standards), 3c (types and amounts of raw materials), 3d (information for specific sectors – combustion), 6b (resource efficiency and climate change) and 6d (raw materials) of the Part C3 application form and referenced documents 007, 016, 017 and 023. Also, operating techniques described in supporting documents 000, 005, 008, 014, 015, 018, 019 and 021.	08/03/18
Variation application EPR/BJ8022IZ/V011 Additional information	Application document titled: 'Doc Ref: 003 Table 1 - Proposed changes', provided in response to Application Form Part C2 and revised in response to request for additional information served on 03/10/19.	28/10/19
Response to regulation 61(1) Notice – request for information dated 01/05/18 EPR/BJ8022IZ/V012	Compliance and operating techniques identified in response to the BAT Conclusions for large combustion plant published on 17 th August 2017.	30/08/18
Additional information in response to regulation 61(1) Notice – request for information dated 19/11/19, version received 05/02/20 EPR/BJ8022IZ/V012	<ul style="list-style-type: none"> - Compliance and operating techniques identified in response to BAT conclusions 1, 2, 3, 4, 9, 10, 12, 13, 14, 40, 41, 42, 44 of the BAT Conclusions for large combustion plant published on 17th August 2017. - Compliance and operating techniques identified in response to BAT conclusions 4, 34, 35, 36 and 37 of the BAT Conclusion document for the refining of mineral oil and gas published on 9th October 2014, for combustion equipment burning refinery off-gas. - Compliance and operating techniques for multi-fuel firing combustion equipment. 	05/02/2020
Confirmation received from the operator of operation in accordance with Joint Environmental Programme (JEP) document EPR/BJ8022IZ/V012	JEP report – 'Characterisation of power plant fuels for compliance with LCP BREF Conclusion BAT 9' Issued October 2019, or any later version agreed in writing by the Environment Agency.	18/02/2020

Table S1.3 Improvement programme requirements		
Ref.	Requirement	Date
IC18	<p>The operator shall develop and submit for approval by the Environment Agency a Multi-Fuel Firing Plan, detailing the procedures to demonstrate that the operation multi-fuel firing equipment complies with the requirements of Article 40 of the Industrial Emissions Directive.</p> <p>In particular, since the installation uses refinery off-gas (ROG) as a fuel, the operator shall develop a plan to report and assess compliance of the emissions from the multi-fuel combustion equipment of LCP188 and LCP415 against the multi-fuel weighted emission limits calculated from the limits specified in Tables S3.1 and S3.1a of this permit, according to the formulae provided in IED Article 40(2), following the methodologies described in the 'MFF Protocol'.</p> <p>The Multi-Fuel Firing Plan shall either:</p> <ul style="list-style-type: none"> - Include details of the proposed reporting of emissions from multi-fuel equipment for assessment of compliance against the dynamic multi-fuel weighted emission limit values (DELV) calculated according to the formulae provided in IED Article 40(2); or - Propose for approval by the Environment Agency fixed multi-fuel weighted emission limit values, worked out according to the methodology described in 'MFF Protocol'. In this case the Multi-Fuel Firing Plan shall be accompanied by appropriate technical documentation including: <ol style="list-style-type: none"> 1. Historic fuel firing data from a recent representative period (e.g. three years of operations); 2. The equivalent emission limit values, calculated for each point within that data set, using the article 40(2) formulae; 3. The proposed representative fixed multi-fuel emission limits, based on the median values from the range of emission limit values calculated as per item #2 above; 4. A mechanism, to be included within the site EMS procedures, to repeat this process annually, using measurements of actual fuel use and calorific value obtained throughout the year, to assess whether the set values remain representative of the fuels burnt; 5. A mechanism, to be included within the site EMS procedures, to inform the Environment Agency in writing within 28 days of a significant change in fuel mix, in order that the suitability of the ELVs, determined in item #1 to item #3 above, can be reviewed; 6. The proposed annual mass emission limit to be set based on the actual mass emissions measured and reported for that combustion plant, over a recent representative period (e.g. the last 3 years) for each relevant pollutant. 	<p>Within 6 months from the date of issue of variation EPR/BJ8022IZ /V012</p>
IC19	<p><u>LCP BAT Conclusion 2</u></p> <p>The operator shall install and put into operation devices for continuous measurement of flue gas pressure in the flues of GT/HRSG 1 and GT/HRSG 2, part of LCP188. The operator shall confirm in writing completion of this Improvement Condition.</p>	<p>01/06/21</p>
IC20	<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 can be operated as set out in condition 2.3.9 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>	<p>Within 12 months from the date of issue of variation EPR/BJ8022IZ /V012</p>

Table S1.4 Start-up and Shut-down thresholds		
Emission Point and Unit Reference	“Minimum Start-Up Load” Load in MW and as percent of rated power output (%) And/or when two of the criteria listed below for the LCP or unit have been met.	“Minimum Shut-Down Load” Load in MW and as percent of rated power output (%) And/or when two of the criteria listed below for the LCP or unit have been met.
A1 LCP188 GT1	Whichever is lower between: <ul style="list-style-type: none"> • Output load: 151 MW, 54.3% rated power output; and • The point at which the combustion system switches into stable combustion mode (DLN Mode 6.3 – Enumerator 3). 	Whichever is lower between: <ul style="list-style-type: none"> • Output load: 97 MW; 34.8% rated power output; and • The point at which the combustion system switches out of stable combustion mode (DLN Mode 6.3 – Enumerator 3)
A2 LCP188 GT2	Whichever is lower between: <ul style="list-style-type: none"> • Output load 148 MW, 52.1% rated power output; and • The point at which the combustion system switches into stable combustion mode (DLN Mode 6.3 – Enumerator 3) 	Whichever is lower between: <ul style="list-style-type: none"> • Output load 99 MW, 34.8% rated power output; and • The point at which the combustion system switches out of stable combustion mode (DLN Mode 6.3 – Enumerator 3)
A3 LCP188 AB1	When two of the criteria listed below for the unit have been met: <ul style="list-style-type: none"> • Steam rate: 20% of Maximum Continuous Rate • Fuel Flow: 20% of maximum flow rate • Steam Temperature: 460°C 	When two of the criteria listed below for the unit have been met: <ul style="list-style-type: none"> • Steam rate: 20% of Maximum Continuous Rate • Fuel Flow: 20% of maximum flow rate • Steam Temperature: 460°C
A4 LCP188 AB2	When two of the criteria listed below for the unit have been met: <ul style="list-style-type: none"> • Steam rate: 20% of Maximum Continuous Rate • Fuel Flow: 20% of maximum flow rate • Steam Temperature: 460°C 	When two of the criteria listed below for the unit have been met: <ul style="list-style-type: none"> • Steam rate: 20% of Maximum Continuous Rate • Fuel Flow: 20% of maximum flow rate • Steam Temperature: 460°C
A5 LCP415 GT3	Output Load: 115MW, 40.2% rated power output	Output Load: 97MW, 33.9% rated power output

Table S1.5 Dry Low NOx effective definition	
Emission Point and Unit Reference	Dry Low NOx effective definition Load in MW and as percent of rated power output (%) or when the criteria listed below for the LCP or unit have been met
A1 LCP188 GT1	Whichever is lower between: <ul style="list-style-type: none"> • Output load: 151 MW, 54.3% rated power output; and • The point at which the combustion system switches into (or out of) stable combustion mode (DLN Mode 6.3 – Enumerator 3).
A2 LCP188 GT2	Whichever is lower between: <ul style="list-style-type: none"> • Output load 148 MW, 52.1% rated power output; and • The point at which the combustion system switches into (or out of) stable combustion mode (DLN Mode 6.3 – Enumerator 3)
A5 LCP415 GT3	Output Load: 115MW, 40.2% rated power output

Schedule 2 – Raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
Refinery Off-Gas (ROG)	Not exceeding 0.02% w/w max sulphur content
Gas Oil	Not exceeding 0.1% w/w sulphur content
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	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down. Natural gas firing	Limit (including unit) - these limits do not apply during start up or shut down. Refinery Off Gas (ROG)	Limit (including unit) - these limits do not apply during start up or shut down. Distillate fuel oil firing	Limit (including unit) - these limits do not apply during start up or shut down. Multi-fuel firing	Reference period	Monitoring frequency	Monitoring standard or method
A1 [GT1/ HRSG1. Point A1 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No.188 GT1/ HRSG1	50 mg/m ³ 70% load and above	No ROG firing	No gas oil firing	Not applicable	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A1 [GT1/ HRSG1. Point A1 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No.188 GT1/ HRSG1	55 mg/m ³ 70% load and above 55 mg/m ³ MSUL/MSDL to base load	No ROG firing	No gas oil firing	Not applicable	Daily average	Continuous	BS EN 14181
A1 [GT1/ HRSG1. Point A1 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No.188 GT1/ HRSG1	100 mg/m ³ 70% load and above	No ROG firing	No gas oil firing	Not applicable	95% of validated hourly averages within a calendar year	Continuous	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	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
			Natural gas firing	Refinery Off Gas (ROG)	Distillate fuel oil firing	Multi-fuel firing			
A1 [GT1/ HRSG1. Point A1 on site plan in Schedule 7]	Carbon Monoxide	LCP No.188 GT1/ HRSG1	100 mg/m ³ 70% load and above	No ROG firing	No gas oil firing	Not applicable	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A1 [GT1/ HRSG1. Point A1 on site plan in Schedule 7]	Carbon Monoxide	LCP No.188 GT1/ HRSG1	110 mg/m ³ 70% load and above 110 mg/m ³ MSUL/MSDL to base load	No ROG firing	No gas oil firing	Not applicable	Daily average	Continuous	BS EN 14181
A1 [GT1/ HRSG1. Point A1 on site plan in Schedule 7]	Carbon Monoxide	LCP No.188 GT1/ HRSG1	200 mg/m ³ 70% load and above	No ROG firing	No gas oil firing	Not applicable	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A1 [GT1/ HRSG1. Point A1 on site plan in Schedule 7]	Sulphur Dioxide	LCP No.188 GT1/ HRSG1	No limit applies	No ROG firing	No gas oil firing	Not applicable	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency

Table S3.1 Point source emissions to air
- emission limits and monitoring requirements shall apply until 16 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
			Natural gas firing	Refinery Off Gas (ROG)	Distillate fuel oil firing	Multi-fuel firing			
A1 [GT1/ HRSG1. Point A1 on site plan in Schedule 7]	Dust	LCP No.188 GT1/ HRSG1	No ELV specified in IED	No ROG firing	No gas oil firing	Not applicable	-	-	-
A2 [GT2/ HRSG2. Point A2 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No.188 GT2/ HRSG2	50 mg/m ³ 70% load and above	No ROG firing	No gas oil firing	Not applicable	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A2 [GT2/ HRSG2. Point A2 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No.188 GT2/ HRSG2	55 mg/m ³ 70% load and above 55 mg/m ³ MSUL/MSDL to base load	No ROG firing	No gas oil firing	Not applicable	Daily average	Continuous	BS EN 14181
A2 [GT2/ HRSG2. Point A2 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No.188 GT2/ HRSG2	100 mg/m ³ 70% load and above	No ROG firing	No gas oil firing	Not applicable	95% of validated hourly averages within a calendar year	Continuous	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	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down. Natural gas firing	Limit (including unit) - these limits do not apply during start up or shut down. Refinery Off Gas (ROG)	Limit (including unit) - these limits do not apply during start up or shut down. Distillate fuel oil firing	Limit (including unit) - these limits do not apply during start up or shut down. Multi-fuel firing	Reference period	Monitoring frequency	Monitoring standard or method
A2 [GT2/ HRSG2. Point A2 on site plan in Schedule 7]	Carbon Monoxide	LCP No.188 GT2/ HRSG2	100 mg/m ³ 70% load and above	No ROG firing	No gas oil firing	Not applicable	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A2 [GT2/ HRSG2. Point A2 on site plan in Schedule 7]	Carbon Monoxide	LCP No.188 GT2/ HRSG2	110 mg/m ³ 70% load and above 110 mg/ m ³ MSUL/MSDL to base load	No ROG firing	No gas oil firing	Not applicable	Daily average	Continuous	BS EN 14181
A2 [GT2/ HRSG2. Point A2 on site plan in Schedule 7]	Carbon Monoxide	LCP No.188 GT2/ HRSG2	200 mg/m ³ MSUL/MSDL to base load	No ROG firing	No gas oil firing	Not applicable	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A2 [GT2/ HRSG2. Point A2 on site plan in Schedule 7]	Sulphur Dioxide	LCP No.188 GT2/ HRSG2	No limit applies	No ROG firing	No gas oil firing	Not applicable	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency

Table S3.1 Point source emissions to air
- emission limits and monitoring requirements shall apply until 16 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
			Natural gas firing	Refinery Off Gas (ROG)	Distillate fuel oil firing	Multi-fuel firing			
A2 [GT2/ HRSG2. Point A2 on site plan in Schedule 7]	Dust	LCP No.188 GT2/ HRSG2	No ELV specified in IED	No ROG firing	No gas oil firing	Not applicable	-	-	-
A5 [GT3/ HRSG3. Point A5 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 415 GT3/ HRSG3	50 mg/m ³ 70% load and above	120 mg/m ³ 70% load and above	No gas oil firing	[Note 1]	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A5 [GT3/ HRSG3. Point A5 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 415 GT3/ HRSG3	55 mg/m ³ 70% load and above 55 mg/m ³ MSUL/MSDL to base load	132 mg/m ³ 70% load and above 132 mg/m ³ MSUL/MSDL to base load	No gas oil firing	[Note 1]	Daily average	Continuous	BS EN 14181
A5 [GT3/ HRSG3. Point A5 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 415 GT3/ HRSG3	100 mg/m ³ 70% load and above	240 mg/m ³ 70% load and above	No gas oil firing	[Note 1]	95% of validated hourly averages within a calendar year	Continuous	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	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
			Natural gas firing	Refinery Off Gas (ROG)	Distillate fuel oil firing	Multi-fuel firing			
A5 [GT3/ HRSG3. Point A5 on site plan in Schedule 7]	Carbon Monoxide	LCP No. 415 GT3/ HRSG3	100 mg/m ³ 70% load and above	No ELV specified in IED	No gas oil firing	Not applicable	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A5 [GT3/ HRSG3. Point A5 on site plan in Schedule 7]	Carbon Monoxide	LCP No. 415 GT3/ HRSG3	110 mg/m ³ 70% load and above 110 mg/m ³ MSUL/MSDL to base load	No ELV specified in IED	No gas oil firing	Not applicable	Daily average	Continuous	BS EN 14181
A5 [GT3/ HRSG3. Point A5 on site plan in Schedule 7]	Carbon Monoxide	LCP No. 415 GT3/ HRSG3	200 mg/m ³ 70% load and above	No ELV specified in IED	No gas oil firing	Not applicable	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A5 [GT3/ HRSG3. Point A5 on site plan in Schedule 7]	Sulphur Dioxide	LCP No. 415 GT3/ HRSG3	35 mg/m ³ MSUL/MSDL to base load	35 mg/m ³ MSUL/MSDL to base load	No gas oil firing	35 mg/m ³ MSUL/MSDL to base load	Monthly mean of validated hourly averages	Continuous	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	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
			Natural gas firing	Refinery Off Gas (ROG)	Distillate fuel oil firing	Multi-fuel firing			
A5 [GT3/HRSG3. Point A5 on site plan in Schedule 7]	Sulphur Dioxide	LCP No. 415 GT3/ HRSG3	39 mg/m ³ MSUL/MSDL to base load	39 mg/m ³ MSUL/MSDL to base load	No gas oil firing	39 mg/m ³ MSUL/MSDL to base load	Daily average	Continuous	BS EN 14181
A5 [GT3/HRSG3. Point A5 on site plan in Schedule 7]	Sulphur Dioxide	LCP No. 415 GT3/ HRSG3	70 mg/m ³ MSUL/MSDL to base load	70 mg/m ³ MSUL/MSDL to base load	No gas oil firing	70 mg/m ³ MSUL/MSDL to base load	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A5 [GT3/HRSG3. Point A5 on site plan in Schedule 7]	Dust	LCP No. 415 GT3/ HRSG3	No ELV specified in IED	No ELV specified in IED	No gas oil firing	Not applicable	-	-	-
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 188 AB1	100 mg/m ³ From MSUL / MSDL point and above	200 mg/m ³ From MSUL / MSDL point and above	200 mg/ m ³ From MSUL / MSDL point and above	[Note 1]	Monthly mean of validated hourly averages	Continuous	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	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
			Natural gas firing	Refinery Off Gas (ROG)	Distillate fuel oil firing	Multi-fuel firing			
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 188 AB1	110 mg/m ³ From MSUL / MSDL point and above	220 mg/m ³ From MSUL / MSDL point and above	220 mg/m ³ From MSUL / MSDL point and above	[Note 1]	Daily average	Continuous	BS EN 14181
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 188 AB1	200 mg/m ³ From MSUL / MSDL point and above	400 mg/m ³ From MSUL / MSDL point and above	400 mg/ m ³ From MSUL / MSDL point and above	[Note 1]	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Carbon Monoxide	LCP No. 188 AB1	100 mg/m ³ From MSUL / MSDL point and above	No ELV specified in IED	No ELV specified in IED	Not applicable	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Carbon Monoxide	LCP No. 188 AB1	110 mg/m ³ From MSUL / MSDL point and above	No ELV specified in IED	No ELV specified in IED	Not applicable	Daily average	Continuous	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	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
			Natural gas firing	Refinery Off Gas (ROG)	Distillate fuel oil firing	Multi-fuel firing			
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Carbon Monoxide	LCP No. 188 AB1	200 mg/m ³ From MSUL / MSDL point and above	No ELV specified in IED	No ELV specified in IED	Not applicable	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Sulphur Dioxide	LCP No. 188 AB1	35 mg/m ³ From MSUL / MSDL point and above	35 mg/m ³ From MSUL / MSDL point and above	250 mg/m ³ From MSUL / MSDL point and above	[Note 1]	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Sulphur Dioxide	LCP No. 188 AB1	38.5 mg/m ³ From MSUL / MSDL point and above	38.5 mg/m ³ From MSUL / MSDL point and above	275 mg/m ³ From MSUL / MSDL point and above	[Note 1]	Daily average	Continuous	BS EN 14181
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Sulphur Dioxide	LCP No. 188 AB1	70 mg/m ³ From MSUL / MSDL point and above	70 mg/m ³ From MSUL / MSDL point and above	500 mg/m ³ From MSUL / MSDL point and above	[Note 1]	95% of validated hourly averages within a calendar year	Continuous	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	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down. Natural gas firing	Limit (including unit) - these limits do not apply during start up or shut down. Refinery Off Gas (ROG)	Limit (including unit) - these limits do not apply during start up or shut down. Distillate fuel oil firing	Limit (including unit) - these limits do not apply during start up or shut down. Multi-fuel firing	Reference period	Monitoring frequency	Monitoring standard or method
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Dust	LCP No. 188 AB1	5 mg/m ³ From MSUL / MSDL point and above	5 mg/m ³ From MSUL / MSDL point and above	No limit applies [Operation for no more than 500 hours per calendar year with a maximum period of 240 hours]	For Natural-gas + ROG: 5 mg/m ³ From MSUL / MSDL point and above For ROG + oil: not applicable	Monthly mean of validated hourly averages	Continuous	BS EN 14181 and BS EN 13284-2
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Dust	LCP No. 188 AB1	5.5 mg/m ³ From MSUL / MSDL point and above	5.5 mg/m ³ From MSUL / MSDL point and above	No limit applies [Operation for no more than 500 hours per calendar year with a maximum period of 240 hours]	For Natural-gas + ROG: 5.5 mg/m ³ From MSUL / MSDL point and above For ROG + oil: not applicable	Daily average	Continuous	BS EN 14181 and BS EN 13284-2

Table S3.1 Point source emissions to air

- emission limits and monitoring requirements shall apply until 16 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down. Natural gas firing	Limit (including unit) - these limits do not apply during start up or shut down. Refinery Off Gas (ROG)	Limit (including unit) - these limits do not apply during start up or shut down. Distillate fuel oil firing	Limit (including unit) - these limits do not apply during start up or shut down. Multi-fuel firing	Reference period	Monitoring frequency	Monitoring standard or method
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Dust	LCP No. 188 AB1	10 mg/m ³ From MSUL / MSDL point and above	10 mg/m ³ From MSUL / MSDL point and above	No limit applies [Operation for no more than 500 hours per calendar year with a maximum period of 240 hours]	For Natural-gas + ROG: 10 mg/m ³ From MSUL / MSDL point and above For ROG + oil: not applicable	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181 and BS EN 13284-2
A4 [Auxiliary Boiler No.2. Point A4 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 188 AB2	100 mg/m ³ From MSUL / MSDL point and above	200 mg/m ³ From MSUL / MSDL point and above	200 mg/m ³ From MSUL / MSDL point and above	[Note 1]	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A4 [Auxiliary Boiler No.2. Point A4 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 188 AB2	110 mg/m ³ From MSUL / MSDL point and above	220 mg/m ³ From MSUL / MSDL point and above	220 mg/m ³ From MSUL / MSDL point and above	[Note 1]	Daily average	Continuous	BS EN 14181
A4 [Auxiliary Boiler No.2. Point A4 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 188 AB2	200 mg/m ³ From MSUL / MSDL point and above	400 mg/m ³ From MSUL / MSDL point and above	400 mg/m ³ From MSUL / MSDL point and above	[Note 1]	95% of validated hourly averages within a calendar year	Continuous	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	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
			Natural gas firing	Refinery Off Gas (ROG)	Distillate fuel oil firing	Multi-fuel firing			
A4 [Auxiliary Boiler No.2. Point A4 on site plan in Schedule 7]	Carbon Monoxide	LCP No. 188 AB2	100 mg/m ³ From MSUL / MSDL point and above	No ELV specified in IED	No ELV specified in IED	Not applicable	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A4 [Auxiliary Boiler No.2. Point A4 on site plan in Schedule 7]	Carbon Monoxide	LCP No. 188 AB2	110 mg/m ³ From MSUL / MSDL point and above	No ELV specified in IED	No ELV specified in IED	Not applicable	Daily average	Continuous	BS EN 14181
A4 [Auxiliary Boiler No.2. Point A4 on site plan in Schedule 7]	Carbon Monoxide	LCP No. 188 AB2	200 mg/m ³ From MSUL / MSDL point and above	No ELV specified in IED	No ELV specified in IED	Not applicable	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A4 [Auxiliary Boiler No.2. Point A4 on site plan in Schedule 7]	Sulphur Dioxide	LCP No. 188 AB2	35 mg/m ³ From MSUL / MSDL point and above	35 mg/m ³ From MSUL / MSDL point and above	250 mg/m ³ From MSUL / MSDL point and above	[Note 1]	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A4 [Auxiliary Boiler No.2. Point A4 on site plan in Schedule 7]	Sulphur Dioxide	LCP No. 188 AB2	38.5 mg/m ³ From MSUL / MSDL point and above	38.5 mg/m ³ From MSUL / MSDL point and above	275 mg/m ³ From MSUL / MSDL point and above	[Note 1]	Daily average	Continuous	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	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down. Natural gas firing	Limit (including unit) - these limits do not apply during start up or shut down. Refinery Off Gas (ROG)	Limit (including unit) - these limits do not apply during start up or shut down. Distillate fuel oil firing	Limit (including unit) - these limits do not apply during start up or shut down. Multi-fuel firing	Reference period	Monitoring frequency	Monitoring standard or method
A4 [Auxiliary Boiler No.2. Point A4 on site plan in Schedule 7]	Sulphur Dioxide	LCP No. 188 AB2	70 mg/m ³ From MSUL / MSDL point and above	70 mg/m ³ From MSUL / MSDL point and above	500 mg/m ³ From MSUL / MSDL point and above	[Note 1]	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A4 [Auxiliary Boiler No.2. Point A4 on site plan in Schedule 7]	Dust	LCP No. 188 AB2	5 mg/m ³ From MSUL / MSDL point and above	5 mg/m ³ From MSUL / MSDL point and above	No limit applies [Operation for no more than 500 hours per calendar year with a maximum period of 240 hours]	For Natural-gas + ROG: 5 mg/m ³ From MSUL / MSDL point and above For ROG + oil: not applicable	Monthly mean of validated hourly averages	Continuous	BS EN 14181 and BS EN 13284-2
A4 [Auxiliary Boiler No.2. Point A4 on site plan in Schedule 7]	Dust	LCP No. 188 AB2	5.5 mg/m ³ From MSUL / MSDL point and above	5.5 mg/m ³ From MSUL / MSDL point and above	No limit applies [Operation for no more than 500 hours per calendar year with a maximum period of 240 hours]	For Natural-gas + ROG: 5.5 mg/m ³ From MSUL / MSDL point and above For ROG + oil: not applicable	Daily average	Continuous	BS EN 14181 and BS EN 13284-2

Table S3.1 Point source emissions to air									
- emission limits and monitoring requirements shall apply until 16 August 2021									
Emission point ref. & location	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
			Natural gas firing	Refinery Off Gas (ROG)	Distillate fuel oil firing	Multi-fuel firing			
A4 [Auxiliary Boiler No.2. Point A4 on site plan in Schedule 7]	Dust	LCP No. 188 AB2	10 mg/m ³ From MSUL / MSDL point and above	10 mg/m ³ From MSUL / MSDL point and above	No limit applies [Operation for no more than 500 hours per calendar year with a maximum period of 240 hours]	For Natural-gas + ROG: 10 mg/m ³ From MSUL / MSDL point and above For ROG + oil: not applicable	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181 and BS EN 13284-2
A1 to A5 [Points A1 to A5 on site plan in Schedule 7]	Oxygen	LCP No. 188 LCP No. 415	-	-	-	-	-	Continuous as appropriate to reference	BS EN 14181
A1 to A5 [Points A1 to A5 on site plan in Schedule 7]	Water Vapour	LCP No. 188 LCP No. 415	-	-	-	-	-	Continuous as appropriate to reference	BS EN 14181
A1 to A5 [Points A1 to A5 on site plan in Schedule 7]	Stack gas temperature	LCP No. 188 LCP No. 415	-	-	-	-	-	Continuous as appropriate to reference	Traceable to national standards

Table S3.1 Point source emissions to air

- emission limits and monitoring requirements shall apply until 16 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down. Natural gas firing	Limit (including unit) - these limits do not apply during start up or shut down. Refinery Off Gas (ROG)	Limit (including unit) - these limits do not apply during start up or shut down. Distillate fuel oil firing	Limit (including unit) - these limits do not apply during start up or shut down. Multi-fuel firing	Reference period	Monitoring frequency	Monitoring standard or method
A1 to A5 [Points A1 to A5 on site plan in Schedule 7]	Stack gas pressure [Note 2]	LCP No. 188 LCP No. 415	-	-	-	-	-	Continuous as appropriate to reference	Traceable to national standards
A1 to A5 [Points A1 to A5 on site plan in Schedule 7]	As required by the Method Implementation Document for BS EN 15259	LCP No. 188 LCP No. 415	-	-	-	-	-	Pre-operation and when there is a significant operational change	BS EN 15259

Notes:

1. Where there is the simultaneous use of two types of fuel (i.e. ROG and natural gas or ROG and distillate fuel oil) in a combustion plant with different emission limit values for the different fuels, the emissions shall not exceed the dynamic multi-fuel weighted emission limit values (DELV) calculated according to the formulae provided in IED Article 40(2), or the fixed multi-fuel weighted emission limit values calculated as the median value of emission limits calculated according to the formulae provided in IED Article 40(2) for historic fuel firing data from a recent representative period, according to the methodology described in 'MFF Protocol'. Where the option of complying with median value multi-fuel weighted emission limits is chosen by the Operator, these need to be determined as part of improvement condition IC18 in table S1.3 of this permit.
2. Subject to completion of improvement condition IC19 in table S1.3 of this permit.

Table S3.1a Point source emissions to air
- emission limits and monitoring requirements shall apply from 17 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down. Natural gas firing	Limit (including unit) - these limits do not apply during start up or shut down. Refinery Off Gas (ROG)	Limit (including unit) - these limits do not apply during start up or shut down. Distillate fuel oil firing	Limit (including unit) - these limits do not apply during start up or shut down. Multi-fuel firing	Reference period	Monitoring frequency	Monitoring standard or method
A1 [GT1/ HRSG1. Point A1 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No.188 GT1/ HRSG1	40 mg/m ³ When DLN is effective	No ROG firing	No gas oil firing	Not applicable	Yearly average	Continuous	BS EN 14181
A1 [GT1/ HRSG1. Point A1 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No.188 GT1/ HRSG1	50 mg/m ³ When DLN is effective	No ROG firing	No gas oil firing	Not applicable	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A1 [GT1/ HRSG1. Point A1 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No.188 GT1/ HRSG1	50 mg/m ³ When DLN is effective 50 mg/m ³ MSUL/MSDL to base load	No ROG firing	No gas oil firing	Not applicable	Daily average	Continuous	BS EN 14181
A1 [GT1/ HRSG1. Point A1 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No.188 GT1/ HRSG1	100 mg/m ³ When DLN is effective	No ROG firing	No gas oil firing	Not applicable	95% of validated hourly averages within a calendar year	Continuous	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	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down. Natural gas firing	Limit (including unit) - these limits do not apply during start up or shut down. Refinery Off Gas (ROG)	Limit (including unit) - these limits do not apply during start up or shut down. Distillate fuel oil firing	Limit (including unit) - these limits do not apply during start up or shut down. Multi-fuel firing	Reference period	Monitoring frequency	Monitoring standard or method
A1 [GT1/ HRSG1. Point A1 on site plan in Schedule 7]	Carbon Monoxide	LCP No.188 GT1/ HRSG1	50 mg/m ³ When DLN is effective	No ROG firing	No gas oil firing	Not applicable	Yearly average	Continuous	BS EN 14181
A1 [GT1/ HRSG1. Point A1 on site plan in Schedule 7]	Carbon Monoxide	LCP No.188 GT1/ HRSG1	100 mg/m ³ When DLN is effective	No ROG firing	No gas oil firing	Not applicable	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A1 [GT1/ HRSG1. Point A1 on site plan in Schedule 7]	Carbon Monoxide	LCP No.188 GT1/ HRSG1	110 mg/m ³ When DLN is effective 110 mg/m ³ MSUL/MSDL to base load	No ROG firing	No gas oil firing	Not applicable	Daily average	Continuous	BS EN 14181
A1 [GT1/ HRSG1. Point A1 on site plan in Schedule 7]	Carbon Monoxide	LCP No.188 GT1/ HRSG1	200 mg/m ³ When DLN is effective	No ROG firing	No gas oil firing	Not applicable	95% of validated hourly averages within a calendar year	Continuous	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	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down. Natural gas firing	Limit (including unit) - these limits do not apply during start up or shut down. Refinery Off Gas (ROG)	Limit (including unit) - these limits do not apply during start up or shut down. Distillate fuel oil firing	Limit (including unit) - these limits do not apply during start up or shut down. Multi-fuel firing	Reference period	Monitoring frequency	Monitoring standard or method
A1 [GT1/ HRSG1. Point A1 on site plan in Schedule 7]	Sulphur Dioxide	LCP No.188 GT1/ HRSG1	No limit applies	No ROG firing	No gas oil firing	Not applicable	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
A1 [GT1/ HRSG1. Point A1 on site plan in Schedule 7]	Dust	LCP No.188 GT1/ HRSG1	No limit applies	No ROG firing	No gas oil firing	Not applicable	-	-	-
A2 [GT2/ HRSG2. Point A2 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No.188 GT2/ HRSG2	40 mg/m ³ When DLN is effective	No ROG firing	No gas oil firing	Not applicable	Yearly average	Continuous	BS EN 14181
A2 [GT2/ HRSG2. Point A2 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No.188 GT2/ HRSG2	50 mg/m ³ When DLN is effective	No ROG firing	No gas oil firing	Not applicable	Monthly mean of validated hourly averages	Continuous	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	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down. Natural gas firing	Limit (including unit) - these limits do not apply during start up or shut down. Refinery Off Gas (ROG)	Limit (including unit) - these limits do not apply during start up or shut down. Distillate fuel oil firing	Limit (including unit) - these limits do not apply during start up or shut down. Multi-fuel firing	Reference period	Monitoring frequency	Monitoring standard or method
A2 [GT2/ HRSG2. Point A2 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No.188 GT2/ HRSG2	50 mg/m ³ When DLN is effective 50 mg/m ³ MSUL/MSDL to base load	No ROG firing	No gas oil firing	Not applicable	Daily average	Continuous	BS EN 14181
A2 [GT2/ HRSG2. Point A2 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No.188 GT2/ HRSG2	100 mg/m ³ When DLN is effective	No ROG firing	No gas oil firing	Not applicable	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A2 [GT2/ HRSG2. Point A2 on site plan in Schedule 7]	Carbon Monoxide	LCP No.188 GT2/ HRSG2	50 mg/m ³ When DLN is effective	No ROG firing	No gas oil firing	Not applicable	Yearly average	Continuous	BS EN 14181
A2 [GT2/ HRSG2. Point A2 on site plan in Schedule 7]	Carbon Monoxide	LCP No.188 GT2/ HRSG2	100 mg/m ³ When DLN is effective	No ROG firing	No gas oil firing	Not applicable	Monthly mean of validated hourly averages	Continuous	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	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
			Natural gas firing	Refinery Off Gas (ROG)	Distillate fuel oil firing	Multi-fuel firing			
A2 [GT2/ HRSG2. Point A2 on site plan in Schedule 7]	Carbon Monoxide	LCP No.188 GT2/ HRSG2	110 mg/m ³ When DLN is effective 110 mg/ m ³ MSUL/MSDL to base load	No ROG firing	No gas oil firing	Not applicable	Daily average	Continuous	BS EN 14181
A2 [GT2/ HRSG2. Point A2 on site plan in Schedule 7]	Carbon Monoxide	LCP No.188 GT2/ HRSG2	200 mg/m ³ When DLN is effective	No ROG firing	No gas oil firing	Not applicable	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A2 [GT2/ HRSG2. Point A1 on site plan in Schedule 7]	Sulphur Dioxide	LCP No.188 GT1/ HRSG1	No limit applies	No ROG firing	No gas oil firing	Not applicable	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
A2 [GT2/ HRSG2. Point A2 on site plan in Schedule 7]	Dust	LCP No.188 GT2/ HRSG2	No limit applies	No ROG firing	No gas oil firing	Not applicable	-	-	-

Table S3.1a Point source emissions to air									
- emission limits and monitoring requirements shall apply from 17 August 2021									
Emission point ref. & location	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
			Natural gas firing	Refinery Off Gas (ROG)	Distillate fuel oil firing	Multi-fuel firing			
A5 [GT3/ HRSG3. Point A5 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No.415 GT3/ HRSG3	40 mg/m ³ When DLN is effective [Note 2]	No limit applies	No gas oil firing	Not applicable	Yearly average	Continuous	BS EN 14181
A5 [GT3/ HRSG3. Point A5 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 415 GT3/ HRSG3	50 mg/m ³ When DLN is effective	120 mg/m ³ When DLN is effective	No gas oil firing	[Note 1]	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A5 [GT3/ HRSG3. Point A5 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 415 GT3/ HRSG3	50 mg/m ³ When DLN is effective 50 mg/m ³ MSUL/MSDL to base load	132 mg/m ³ When DLN is effective 132 mg/m ³ MSUL/MSDL to base load	No gas oil firing	[Note 1]	Daily average	Continuous	BS EN 14181
A5 [GT3/ HRSG3. Point A5 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 415 GT3/ HRSG3	100 mg/m ³ When DLN is effective	240 mg/m ³ When DLN is effective	No gas oil firing	[Note 1]	95% of validated hourly averages within a calendar year	Continuous	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	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down. Natural gas firing	Limit (including unit) - these limits do not apply during start up or shut down. Refinery Off Gas (ROG)	Limit (including unit) - these limits do not apply during start up or shut down. Distillate fuel oil firing	Limit (including unit) - these limits do not apply during start up or shut down. Multi-fuel firing	Reference period	Monitoring frequency	Monitoring standard or method
A5 [GT3/ HRSG3. Point A5 on site plan in Schedule 7]	Carbon Monoxide	LCP No.415 GT3/ HRSG3	50 mg/m ³ When DLN is effective [Note 2]	No limit applies	No gas oil firing	Not applicable	Yearly average	Continuous	BS EN 14181
A5 [GT3/ HRSG3. Point A5 on site plan in Schedule 7]	Carbon Monoxide	LCP No. 415 GT3/ HRSG3	100 mg/m ³ When DLN is effective	100 mg/m ³ When DLN is effective	No gas oil firing	100 mg/m ³ When DLN is effective	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A5 [GT3/ HRSG3. Point A5 on site plan in Schedule 7]	Carbon Monoxide	LCP No. 415 GT3/ HRSG3	110 mg/m ³ When DLN is effective 110 mg/m ³ MSUL/MSDL to base load	No limit applies	No gas oil firing	Not applicable	Daily average	Continuous	BS EN 14181
A5 [GT3/ HRSG3. Point A5 on site plan in Schedule 7]	Carbon Monoxide	LCP No. 415 GT3/ HRSG3	200 mg/m ³ When DLN is effective	No limit applies	No gas oil firing	Not applicable	95% of validated hourly averages within a calendar year	Continuous	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	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
			Natural gas firing	Refinery Off Gas (ROG)	Distillate fuel oil firing	Multi-fuel firing			
A5 [GT3/ HRSG3. Point A5 on site plan in Schedule 7]	Sulphur Dioxide	LCP No. 415 GT3/ HRSG3	35 mg/m ³ MSUL/MSDL to base load	35 mg/m ³ MSUL/MSDL to base load	No gas oil firing	35 mg/m ³ MSUL/MSDL to base load	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A5 [GT3/ HRSG3. Point A5 on site plan in Schedule 7]	Sulphur Dioxide	LCP No. 415 GT3/ HRSG3	39 mg/m ³ MSUL/MSDL to base load	39 mg/m ³ MSUL/MSDL to base load	No gas oil firing	39 mg/m ³ MSUL/MSDL to base load	Daily average	Continuous	BS EN 14181
A5 [GT3/ HRSG3. Point A5 on site plan in Schedule 7]	Sulphur Dioxide	LCP No. 415 GT3/ HRSG3	70 mg/m ³ MSUL/MSDL to base load	70 mg/m ³ MSUL/MSDL to base load	No gas oil firing	70 mg/m ³ MSUL/MSDL to base load	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A5 [GT3/ HRSG3. Point A5 on site plan in Schedule 7]	Dust	LCP No. 415 GT3/ HRSG3	No limit applies	No limit applies	No gas oil firing	Not applicable	-	-	-

Table S3.1a Point source emissions to air
- emission limits and monitoring requirements shall apply from 17 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
			Natural gas firing	Refinery Off Gas (ROG)	Distillate fuel oil firing	Multi-fuel firing			
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 188 AB1	100 mg/m ³ From MSUL / MSDL point and above [Note 2]	No limit applies	No limit applies	Not applicable	Yearly average	Continuous	BS EN 14181
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 188 AB1	100 mg/m ³ From MSUL / MSDL point and above	150 mg/m ³ From MSUL / MSDL point and above	200 mg/ m ³ From MSUL / MSDL point and above	[Note 1]	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 188 AB1	110 mg/m ³ From MSUL / MSDL point and above	220 mg/m ³ From MSUL / MSDL point and above	220 mg/m ³ From MSUL / MSDL point and above	[Note 1]	Daily average	Continuous	BS EN 14181
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 188 AB1	200 mg/m ³ From MSUL / MSDL point and above	400 mg/m ³ From MSUL / MSDL point and above	400 mg/ m ³ From MSUL / MSDL point and above	[Note 1]	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Carbon Monoxide	LCP No. 188 AB1	40 mg/m ³ From MSUL / MSDL point and above [Note 2]	No limit applies	No limit applies	Not applicable	Yearly average	Continuous	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	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
			Natural gas firing	Refinery Off Gas (ROG)	Distillate fuel oil firing	Multi-fuel firing			
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Carbon Monoxide	LCP No. 188 AB1	100 mg/m ³ From MSUL / MSDL point and above	100 mg/m ³ From MSUL / MSDL point and above	No limit applies	For Natural-gas + ROG: 100 mg/m ³ From MSUL / MSDL point and above For ROG + oil: not applicable	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Carbon Monoxide	LCP No. 188 AB1	110 mg/m ³ From MSUL / MSDL point and above	No limit applies	No limit applies	Not applicable	Daily average	Continuous	BS EN 14181
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Carbon Monoxide	LCP No. 188 AB1	200 mg/m ³ From MSUL / MSDL point and above	No limit applies	No limit applies	Not applicable	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Sulphur Dioxide	LCP No. 188 AB1	35 mg/m ³ From MSUL / MSDL point and above	35 mg/m ³ From MSUL / MSDL point and above	250 mg/m ³ From MSUL / MSDL point and above	[Note 1]	Monthly mean of validated hourly averages	Continuous	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	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
			Natural gas firing	Refinery Off Gas (ROG)	Distillate fuel oil firing	Multi-fuel firing			
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Sulphur Dioxide	LCP No. 188 AB1	38.5 mg/m ³ From MSUL / MSDL point and above	38.5 mg/m ³ From MSUL / MSDL point and above	275 mg/m ³ From MSUL / MSDL point and above	[Note 1]	Daily average	Continuous	BS EN 14181
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Sulphur Dioxide	LCP No. 188 AB1	70 mg/m ³ From MSUL / MSDL point and above	70 mg/m ³ From MSUL / MSDL point and above	500 mg/m ³ From MSUL / MSDL point and above	[Note 1]	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Dust	LCP No. 188 AB1	5 mg/m ³ From MSUL / MSDL point and above	5 mg/m ³ From MSUL / MSDL point and above	No limit applies [Operation for no more than 500 hours per calendar year with a maximum period of 240 hours]	For Natural-gas + ROG: 5 mg/m ³ From MSUL / MSDL point and above For ROG + oil: not applicable	Monthly mean of validated hourly averages	Continuous	BS EN 14181 and BS EN 13284-2

Table S3.1a Point source emissions to air
- emission limits and monitoring requirements shall apply from 17 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
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A3 [Auxiliary Boiler No.1. Point A3 on site plan in Schedule 7]	Dust	LCP No. 188 AB1	10 mg/m ³ From MSUL / MSDL point and above	10 mg/m ³ From MSUL / MSDL point and above	No limit applies [Operation for no more than 500 hours per calendar year with a maximum period of 240 hours]	For Natural-gas + ROG: 10 mg/m ³ From MSUL / MSDL point and above For ROG + oil: not applicable	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181 and BS EN 13284-2
A4 [Auxiliary Boiler No.2. Point A4 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 188 AB2	100 mg/m ³ From MSUL / MSDL point and above [Note 2]	No limit applies	No limit applies	Not applicable	Yearly average	Continuous	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	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
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A4 [Auxiliary Boiler No.2. Point A4 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 188 AB2	110 mg/m ³ From MSUL / MSDL point and above	220 mg/m ³ From MSUL / MSDL point and above	220 mg/m ³ From MSUL / MSDL point and above	[Note 1]	Daily average	Continuous	BS EN 14181
A4 [Auxiliary Boiler No.2. Point A4 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 188 AB2	200 mg/m ³ From MSUL / MSDL point and above	400 mg/m ³ From MSUL / MSDL point and above	400 mg/ m ³ From MSUL / MSDL point and above	[Note 1]	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A4 [Auxiliary Boiler No.2. Point A4 on site plan in Schedule 7]	Carbon Monoxide	LCP No. 188 AB2	40 mg/m ³ From MSUL / MSDL point and above [Note 2]	No limit applies	No limit applies	Not applicable	Yearly average	Continuous	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	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
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A4 [Auxiliary Boiler No.2. Point A4 on site plan in Schedule 7]	Carbon Monoxide	LCP No. 188 AB2	200 mg/m ³ From MSUL / MSDL point and above	No limit applies	No limit applies	Not applicable	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A4 [Auxiliary Boiler No.2. Point A4 on site plan in Schedule 7]	Sulphur Dioxide	LCP No. 188 AB2	35 mg/m ³ From MSUL / MSDL point and above	35 mg/m ³ From MSUL / MSDL point and above	250 mg/m ³ From MSUL / MSDL point and above	[Note 1]	Monthly mean of validated hourly averages	Continuous	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	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
			Natural gas firing	Refinery Off Gas (ROG)	Distillate fuel oil firing	Multi-fuel firing			
A4 [Auxiliary Boiler No.2. Point A4 on site plan in Schedule 7]	Sulphur Dioxide	LCP No. 188 AB2	38.5 mg/m ³ From MSUL / MSDL point and above	38.5 mg/m ³ From MSUL / MSDL point and above	275 mg/m ³ From MSUL / MSDL point and above	[Note 1]	Daily average	Continuous	BS EN 14181
A4 [Auxiliary Boiler No.2. Point A4 on site plan in Schedule 7]	Sulphur Dioxide	LCP No. 188 AB2	70 mg/m ³ From MSUL / MSDL point and above	70 mg/m ³ From MSUL / MSDL point and above	500 mg/m ³ From MSUL / MSDL point and above	[Note 1]	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A4 [Auxiliary Boiler No.2. Point A4 on site plan in Schedule 7]	Dust	LCP No. 188 AB2	5 mg/m ³ From MSUL / MSDL point and above	5 mg/m ³ From MSUL / MSDL point and above	No limit applies [Operation for no more than 500 hours per calendar year with a maximum period of 240 hours]	For Natural-gas + ROG: 5 mg/m ³ From MSUL / MSDL point and above For ROG + oil: not applicable	Monthly mean of validated hourly averages	Continuous	BS EN 14181 and BS EN 13284-2

Table S3.1a Point source emissions to air									
- emission limits and monitoring requirements shall apply from 17 August 2021									
Emission point ref. & location	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
			Natural gas firing	Refinery Off Gas (ROG)	Distillate fuel oil firing	Multi-fuel firing			
A4 [Auxiliary Boiler No.2. Point A4 on site plan in Schedule 7]	Dust	LCP No. 188 AB2	5.5 mg/m ³ From MSUL / MSDL point and above	5.5 mg/m ³ From MSUL / MSDL point and above	No limit applies [Operation for no more than 500 hours per calendar year with a maximum period of 240 hours]	For Natural-gas + ROG: 5.5 mg/m ³ From MSUL / MSDL point and above For ROG + oil: not applicable	Daily average	Continuous	BS EN 14181 and BS EN 13284-2
A4 [Auxiliary Boiler No.2. Point A4 on site plan in Schedule 7]	Dust	LCP No. 188 AB2	10 mg/m ³ From MSUL / MSDL point and above	10 mg/m ³ From MSUL / MSDL point and above	No limit applies [Operation for no more than 500 hours per calendar year with a maximum period of 240 hours]	For Natural-gas + ROG: 10 mg/m ³ From MSUL / MSDL point and above For ROG + oil: not applicable	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181 and BS EN 13284-2
A1 to A5 [Points A1 to A5 on site plan in Schedule 7]	Stack gas flow rate	LCP No. 188 LCP No. 415	-	-	-	-	-	Continuous As appropriate to reference	EN ISO 16911 and M2

Table S3.1a Point source emissions to air
- emission limits and monitoring requirements shall apply from 17 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
			Natural gas firing	Refinery Off Gas (ROG)	Distillate fuel oil firing	Multi-fuel firing			
A1 to A5 [Points A1 to A5 on site plan in Schedule 7]	Oxygen	LCP No. 188 LCP No. 415	-	-	-	-	-	Continuous as appropriate to reference	BS EN 14181
A1 to A5 [Points A1 to A5 on site plan in Schedule 7]	Water Vapour	LCP No. 188 LCP No. 415	-	-	-	-	-	Continuous as appropriate to reference	BS EN 14181
A1 to A5 [Points A1 to A5 on site plan in Schedule 7]	Stack gas temperature	LCP No. 188 LCP No. 415	-	-	-	-	-	Continuous as appropriate to reference	Traceable to national standards
A1 to A5 [Points A1 to A5 on site plan in Schedule 7]	Stack gas pressure	LCP No. 188 LCP No. 415	-	-	-	-	-	Continuous as appropriate to reference	Traceable to national standards
A1 to A5 [Points A1 to A5 on site plan in Schedule 7]	As required by the Method Implementation Document for BS EN 15259	LCP No. 188 LCP No. 415	-	-	-	-	-	Pre- operation and when there is a significant operational change	BS EN 15259

Table S3.1a Point source emissions to air
 - emission limits and monitoring requirements shall apply from 17 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Limit (including unit) - these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
			Natural gas firing	Refinery Off Gas (ROG)	Distillate fuel oil firing	Multi-fuel firing			

Notes:

- Where there is the simultaneous use of two types of fuel (i.e. ROG and natural gas or ROG and distillate fuel oil) in a combustion plant with different emission limit values for the different fuels, the emissions shall not exceed the dynamic multi-fuel weighted emission limit values (DELV) calculated according to the formulae provided in IED Article 40(2), or the fixed multi-fuel weighted emission limit values calculated as the median value of emission limits calculated according to the formulae provided in IED Article 40(2) for historic fuel firing data from a recent representative period, according to the methodology described in the 'MFF Protocol'. Where the option of complying with median value multi-fuel weighted emission limits is chosen by the Operator, these need to be determined as part of improvement condition IC18 in table S1.3 of this permit.
- In absence of yearly average emission limits for multi-fuel operation, the yearly average emission limit specified for natural gas firing applies above 500 hours of operation with this sole fuel during the year.

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

Emission point ref. & location	Parameter	Source	M1 ² Limit	M3 ² Limit	M2 ² Limit	Reference period	Monitoring frequency	Monitoring standard or method
W1 Discharge to South Killingholme drain [NGR 51713 41701]	Flow	Site process effluent and surface water drainage	10,000 m ³ per day		-	-	Continuous	As agreed in writing with the Environment Agency

Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements								
Emission point ref. & location	Parameter	Source	M1 ² Limit	M3 ² Limit	M2 ² Limit	Reference period	Monitoring frequency	Monitoring standard or method
W1 Discharge to South Killingholme drain [NGR 51713 41701]	pH	Site process effluent and surface water drainage	6.5 – 8.5 ¹	6.5 – 8.5 ¹	6 - 9	-	Continuous	As agreed in writing with the Environment Agency
W1 Discharge to South Killingholme drain [NGR 51713 41701]	Temperature	Site process effluent and surface water drainage	30 °C ¹	30 °C ¹	30 °C	-	Continuous	As agreed in writing with the Environment Agency
W1 Discharge to South Killingholme drain [NGR 51713 41701]	Oil	Site process effluent and surface water drainage	5 mg/l	5 mg/l	-	-	Weekly	As agreed in writing with the Environment Agency
W1 Discharge to South Killingholme drain [NGR 51713 41701]	Ammoniacal Nitrogen	Site process effluent and surface water drainage	10 mg/l	10 mg/l	-	-	Weekly	As agreed in writing with the Environment Agency

Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements								
Emission point ref. & location	Parameter	Source	M1 ² Limit	M3 ² Limit	M2 ² Limit	Reference period	Monitoring frequency	Monitoring standard or method
W1 Discharge to South Killingholme drain [NGR 51713 41701]	Total suspended solids	Site process effluent and surface water drainage	50 mg/l	50 mg/l	50 mg/l	-	Weekly	As agreed in writing with the Environment Agency
W1 Discharge to South Killingholme drain [NGR 51713 41701]	COD	Site process effluent and surface water drainage	200 mg/l	200 mg/l	-	-	Weekly	As agreed in writing with the Environment Agency
W1 Discharge to South Killingholme drain [NGR 51713 41701]	Dissolved oxygen	Site process effluent and surface water drainage	>50%	-	-	-	Weekly	As agreed in writing with the Environment Agency
Notes:								
1. A target for typical operation, but not subject to notification requirements.								
2. M1, M2 and M3 are holding ponds, part of the drainage system. Water from M1 and M3 is sent to M2, from where is discharged to emission point W1.								

Table S3.3 Annual limits		
Substance	Medium	Limit (including unit)
Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂) from emission point A3	Air	Note 1 (tonnes/y)
Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂) from emission point A4	Air	Note 1 (tonnes/y)
Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂) from emission point A5	Air	Note 1 (tonnes/y)
Notes:		
1. Annual mass emission limits for multi-fuel firing equipment to be determined upon completion of improvement condition IC18 in this permit, if fixed multi-fuel weighted emission limit values are proposed, according to the methodology described in the 'MFF Protocol'.		

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
LCP 188 and LCP 415	Net Electric efficiency and/or Net Total Fuel Utilisation	After each modification which that could significantly affect these parameters	EN Standards or equivalent	Note 1 to LCP BAT conclusion #2: in the case of CHP units, if for technical reasons the performance test cannot be carried out with the unit operated at full load for the heat supply, the test can be supplemented or substituted by a calculation using full load parameters.

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	A1, A2, A3, A4, A5	Every 3 months	1 January, 1 April, 1 July, 1 October
Carbon Monoxide	A1, A2, A3, A4, A5	Every 3 months	1 January, 1 April, 1 July, 1 October
Sulphur dioxide	A1, A2	Every 6 months	1 January, 1 July
	A3, A4, A5	Every 3 months	1 January, 1 April, 1 July, 1 October
Dust	A3, A4	Every 3 months	1 January, 1 April, 1 July, 1 October
Emissions to Water Parameters as required by condition 3.5.1	W1/M1, W1/M2, W1/M3	Every 3 months	1 January, 1 April, 1 July, 1 October

Table S4.2 Resource Efficiency Metrics	
Parameter	Units
Electricity Exported	GWhr
Heat Exported	GWhr
Mechanical Power Provided	GWhr
Fossil Fuel Energy Consumption	GWhr
Non-Fossil Fuel Energy Consumption	GWhr
Annual Operating Hours	hr
Water Abstracted from Fresh Water Source	m ³
Water Abstracted from Borehole Source	m ³
Water Abstracted from Estuarine Water Source	m ³
Water Abstracted from Sea Water Source	m ³
Water Abstracted from Mains Water Source	m ³
Gross Total Water Used	m ³
Net Water Used	m ³
Hazardous Waste Transferred for Disposal at another installation	t
Hazardous Waste Transferred for Recovery at another installation	t
Non-Hazardous Waste Transferred for Disposal at another installation	t
Non-Hazardous Waste Transferred for Recovery at another installation	t

Table S4.2 Resource Efficiency Metrics	
Parameter	Units
Waste recovered to Quality Protocol Specification and transferred off-site	t
Waste transferred directly off-site for use under an exemption / position statement	t

Table S4.3 Large Combustion Plant Performance parameters for reporting to DEFRA		
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	t
Total Emissions to Air of SO ₂ for each LCP	Annually	t
Total Emissions to Air of Dust for each LCP	Annually	t
Operating Hours for each LCP	Annually	hr

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
Air	Form IED CON 2 – 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
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency. Form as agreed in writing by the Environment Agency.	Area Office
Resource Efficiency	Form REM1 – resource efficiency annual report Form as agreed in writing by the Environment Agency.	National and Area Office
Water	Form water 1 or other 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	
Name of operator	
Location of Facility	
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	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
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.

“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.

“commissioning” means testing of the installation that involves any operation of a Large Combustion Plant referenced in schedule 1, table S1.1.

“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.

“dynamic emission limit value” (DELV) means an emission limit that varies in accordance with Article 40 of the Industrial Emissions Directive.

“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.

“emissions to land” includes emissions to groundwater.

“Energy efficiency” means the annual net plant energy efficiency, the value for which is 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.

“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.

“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.

“MFF Protocol” means IED Chapter III Protocol for Multi-fuel Firing Refinery Combustion Plants granted a Permit prior to 7 January 2013, version 5.

“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.

“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.

“SI” means site inspector.

“Standby fuel” means alternative liquid fuels that are used in emergency situations when the gas fuel which is normally used, is not available.

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.

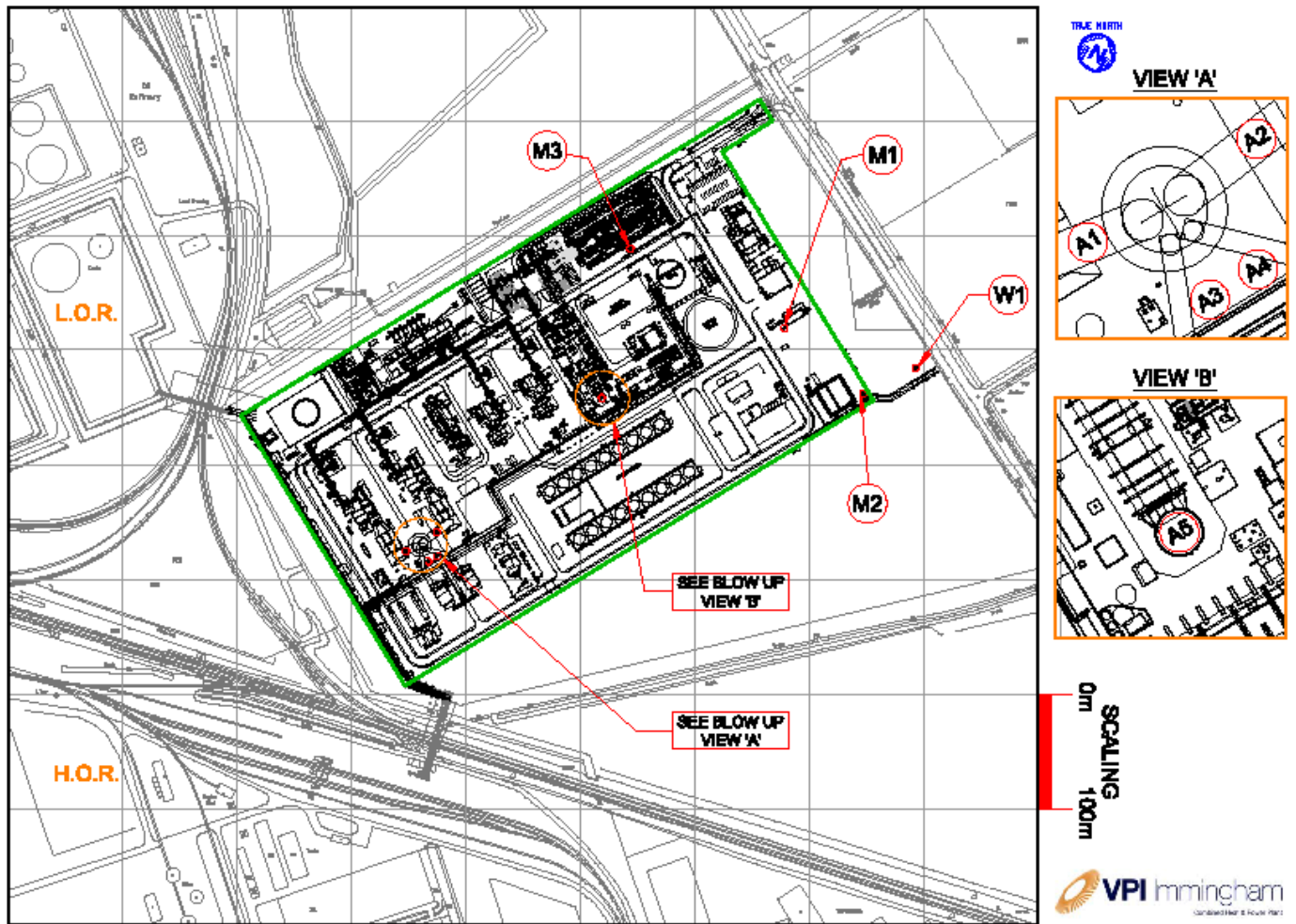
Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

- 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.

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

Schedule 7 – Site plan



END OF PERMIT