Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

ConocoPhillips Petroleum Company UK Limited

Teesside Crude Oil Stabilisation Terminal
Seal Sands
Middlesbrough
TS2 1UH

Variation number

EPR/NP3033LN/V007

Permit number

EPR/NP3033LN

Teesside Crude Oil Stabilisation Terminal
Permit number EPR/NP3033LN

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 1 of the notice specifies the conditions that have been varied and schedule 2 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.

Purpose of this variation

Review permit conditions

Article 21(3) of the Industrial Emissions Directive (IED) requires the Environment Agency to review conditions in permits that it has issued and to ensure that the permit delivers compliance with relevant standards, within four years of the publication of updated decisions on Best Available Techniques (BAT) Conclusions. We have reviewed the permit for this installation against the revised BAT Conclusions for the Refining of Mineral Oil and Gas industry sector published on 28 October 2014.

We have set improvement conditions to track progress against compliance for BAT Conclusions 12.

We have also taken the opportunity to set improvement conditions that will deliver compliance with the Water Framework Directive (WFD).

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

The main features of the installation

The installation is located at Seal Sand, Middlesbrough at national grid reference NZ53502530.

The Crude Oil Stabilisation Process

Section 1.2 Part A(1)(e): The loading, unloading, handling or storage of, or the physical, chemical or thermal treatment of: (i) crude oil; and (ii) stabilised crude petroleum

The process is a crude oil stabilisation plant in which light hydrocarbons such as methane, ethane, propane and butane - termed Natural Gas Liquids (NGL's) – and contaminant water are removed from crude oil in large-scale continuous plant. The stabilised crude and the separated, purified NGL's are then exported both locally by pipe-line and by ship for further processing and use. The process has been operating since 1975 and has a nominal design throughput of 1 million barrels of crude per day. The Central Area Transmission System (CATS) is a natural gas transportation and processing system which transports gas from the Central North Sea. Since 1998, segregated NGLs have been imported from the CATS gas terminal for further processing and export using the established routes and processes permitted here.

The process comprises six main units as follows:-

- *Crude Oil receipt and storage* – including North Sea pipe-line from the first onshore isolation valve and four storage spheres.
- *Oil Stabilisation Trains* – six parallel streams containing washing; heating; degassing, cooling and compression units.
- *NGL Plant* – converts the raw NGL feed mixture into individual constituent products; including distillation; cooling; compression; purification; and storage units.
- *Product export* – including metering stations; pipe-lines from the Seal Sands Terminal to the Greatham Tank Farm and for export; ship loading jetties.
- *VOC Recovery Plant* – The volatile organic compound (VOC) vapours emitted from oil tankers during crude loading are collected. The unit uses a carbon bed absorption system to remove the VOC's from the ships vapour stream.
- *Effluent treatment* – including storage for untreated ballast water & process waste waters; plate separators; dissolved air flotation and chemical dosing (peroxide & flocculants). The final effluent is pumped to a third party for final (biological) treatment.

  Section 5.3 Part A1)(a)(ii): Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day by physico-chemical treatment.

  Section 5.4 Part A(1)(a)(ii): Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day by physico-chemical treatment.

Flaring also takes place at either the main elevated flare or the standby flare, air emission points A16 and A17.

<u>The Combustion process</u>

The combustion processes at the installation fall under the Environmental Permitting Regulation Schedule 1 listed activity:

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

This scheduled activity consists of the following processes within the installation:

- Large combustion plant (LCP) comprising three gas turbines (31.2 MWth each) and three steam boilers (104 MWth each) which form one integrated steam raising plant (LCP 62).

The three gas turbines drive propane compressors in the propane refrigeration system which forms part of the crude oil stabilisation plant described above. The pass-out gases from the turbines have a high oxygen content (16%) and are normally routed to the combustion chambers of the steam boilers (emission points A8 & A9) as part of the combustion air supply. In the event of unavailability of the steam boilers the pass-out gases can also be vented to atmosphere via three 18 metre standby stacks at emission points A11 to A13. This however is an infrequent event.

The three steam boilers raise process steam for the crude oil stabilisation plant. Each boiler discharges to one of two shared 45 metre stacks at emission points A8 and A9, with the two stacks forming two large combustion plants (LCP). The feed water treatment plant associated with the steam boilers is included in this permit.

- Six crude oil stabilisation "reboilers".

The six "reboilers" (Numbers 2 to 7 inclusive, each at 40 MWth) heat crude oil as part of the crude oil stabilisation plant. Each "reboiler" discharges to a dedicated 61 metre stack at emission points A2 to A7.

The gas turbines operate on a high pressure fuel consisting mainly of methane. The boilers and reboilers are fuelled by, a mixture of methane, ethane, propane and butane. Both fuels are derived from the stabilisation and fractionation process. Natural gas is available as a back-up fuel in the event that inadequate plant fuel is produced. There are no fuel storage facilities and no abatement plant associated with the process.

The permit includes provision for a Combined Heat and Power (CHP) plant, subject to the completion of pre-operational conditions in Table S1.4 of this permit. The proposed plant would comprise of the following:

- Two gas turbines, each at 278 MWe, discharging at emission points A20 and A21.
- Two auxiliary boilers, each at 150 MWe, discharging at emission points A22 and A23.

Emissions

The main pollutants of concern from the installation are sulphur dioxide (SO_2) and oxides of nitrogen (NOx) from combustion. Low sulphur fuels are used on the site as well as low NOx burners on the stabilisation train reboiler exhausts and the LCP 62 gas turbines. These emissions have been shown to be insignificant at sensitive receptors.

An on-site effluent treatment plant (ETP) consisting of primary and secondary treatment facilities is used for all liquid effluent. Effluent is then transferred to the Bran Sands sewage treatment plant where further treatment is carried out prior to discharge to the River Tees.

The ETP also accepts non-hazardous liquid emissions from the adjacent RWE nPower Cogen facility (permit EPR/RP3130LN).

Management

The site environmental management system is certified to ISO14001 standards.

The site is a top tier COMAH (Control of Major Accident Hazards) site.

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

Status log of the permit		
Description	**Date**	**Comments**
Application received EPR/NP3033LN/A001	07/07/06	Duly made
Additional information request	03/01/07	Application Site Report received 19/01/07
Permit determined EPR/NP3033LN	01/05/07	Permit issued to ConocoPhillips Petroleum Company UK Ltd.
Variation determined EPR/NP3033LN/V002 (Billing ref: ZP3239XX)	20/12/07	To implement the requirements of the National Emission Reduction Plan
Variation application EPR/NP3033LN/V003	23/07/07	Duly made New combined heat and power (CHP) plant to provide electrical power and steam to the installation, replacing that currently provided by the grid and the existing combustion plant.
Variation determined EPR/NP3033LN/V003 (Billing ref: QP3732UN)	10/02/11	

Status log of the permit		
Description	**Date**	**Comments**
Environment Agency variation determined EPR/NP3033LN/V004 (Billing ref: GP3438NL)	29/05/13	Environment Agency initiated variation to implement the changes introduced by the IED (changes to Schedule 1 listed activities).
Regulation 60 Notice sent to the Operator	31/10/14	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	05/02/15	Response received from the Operator.
Additional information received	19/05/15	Response to request for further information (RFI) dated 13/05/15.
Receipt of additional information to the application	18/11/15	Variation application received to update: removal of references to LNG plant Updated with Reg 60(1) Notice.
Additional information received	27/11/15	Response to request for further information (RFI) dated 27/11/15.
Additional information received	01/12/15	Response to request for further information (RFI) dated 30/11/15.
Variation determined EPR/NP3033LN/V005 (Billing ref: HP3734AZ)	24/12/15	Varied and consolidated permit issued in modern condition format for IED Variation effective from 01/01/16.
Application EPR/NP3033LN/V006 (variation and consolidation)	10/11/15	Duly made The reduction in A8 and A9 boiler stack heights from 76 m to 45 m.
Variation determined EPR/NP3033LN (Billing ref: BP3838RH)	08/02/16	Varied and consolidated permit issued in modern condition format.
Regulation 61 Notice requiring information for statutory review of permit dated 19 November 2015 EPR/NP3033LN/V007	29/01/16	Technical standards provided in response to the information notice. Information to demonstrate that relevant BAT conclusions are met for the refining activity. Response received from the Operator in spreadsheet format
Regulation 61 Notice requesting additional information for BAT conclusions 10 & 36 dated 23 January 2017 EPR/NP3033LN/V007	25/01/17	Technical standards provided in response to the information notice. Information to demonstrate that relevant BAT conclusions are met for the refining activity. Response received from the Operator in spreadsheet format. No changes from the 29/01/16 submission.

Status log of the permit		
Description	**Date**	**Comments**
Additional information received	06/09/18	Flare data, combustion fuels, VOC data, and usage of emission points A11 to A13.
Additional information received	11/09/18	LDAR
Further information request sent 20/09/18	20/09/18	General update
Further information provided	08/10/18	Vapour recovery unit, emission point A19
	09/10/18	
Additional information received	22/10/18	Boiler operation (duty boiler and support boiler)
Variation determined EPR/NP3033LN/V007 (Billing ref: DP3237RJ)	26/10/18	Statutory review of permit - BAT Conclusions published 28 October 2014 Varied and consolidated permit issued. Effective from 28/10/18

Other Part A installation permits relating to this installation		
Operator	**Permit number**	**Date of issue**
RWE nPower Cogen	EPR/RP3130LN	26/03/07

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2016

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

Permit number

EPR/NP3033LN

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2016

ConocoPhillips Petroleum Company UK Limited ("the operator")

whose registered office is

20th Floor
1 Angel Court
London
England
EC2R 7HJ

company registration number **00792712**

to operate part of a regulated facility at

Teesside Crude Oil Stabilisation Terminal
Seal Sands
Middlesbrough
TS2 1UH

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

The Notice shall take effect from 28/10/2018.

Name	Date
Mark Barry	**26 October 2018**

Authorised on behalf of the Environment Agency

Schedule 1

All conditions have been varied by the consolidated permit as a result of a review of the permit made by the Environment Agency.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/NP3033LN

This is the consolidated permit referred to in the variation and consolidation notice for permit **EPR/NP3033LN/V007** authorising,

ConocoPhillips Petroleum Company UK Limited ("the operator"),

whose registered office is

20th Floor
1 Angel Court
London
England
EC2R 7HJ

company registration number **00792712**

to operate part of an installation at

Teesside Crude Oil Stabilisation Terminal
Seal Sands
Middlesbrough
TS2 1UH

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

The Notice shall take effect from 28/10/2018.

Name	Date
Mark Barry	**26 October 2018**

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.

1.5 Multiple operator installations

1.5.1 Where the operator notifies the Environment Agency under condition 4.3.1 (a) or 4.3.1 (c), the operator shall also notify without delay the other operators of the installation of the same information.

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; the area edged in red represents the extent of the activities undertaken by the other operator at the installation.

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: A1 (LCP 62). Without prejudice to condition 2.3.1, the activities shall be operated in accordance with the "Electricity Supply Industry IED Compliance Protocol for Utility Boilers and Gas Turbines" revision 1 dated February 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: A1 (LCP 62). The end of the start-up period and the start of the shut-down period shall conform to the specifications set out in Schedule 1, tables S1.2 and S1.5.

2.3.6 Waste shall only be accepted if:

(a) it is of a type and quantity listed in schedule 2 table S2.2; and

(b) it conforms to the description in the documentation supplied by the producer and holder.

2.3.7 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:

(a) the nature of the process producing the waste;

(b) the composition of the waste;

(c) the handling requirements of the waste;

(d) the hazardous property associated with the waste, if applicable; and

(e) the waste code of the waste.

2.3.8 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

2.4 Improvement programme

2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.

2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

2.5 Pre-operational conditions

2.5.1 The operations specified in schedule 1 table S1.4 shall not commence until the measures specified in that table have been completed.

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, S3.2 and S3.3.

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, S3.2 and S3.3;

(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, S3.2 and S3.3 unless otherwise agreed in writing by the Environment Agency.

3.6 Monitoring for the purposes of the Industrial Emissions Directive Chapter III

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.

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, table S3.1; the Continuous Emission Monitors shall be used such that:

(a) for the continuous measurement systems fitted to the LCP release points defined in table S3.1 the validated hourly, monthly 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 (40 minutes). 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 annual production /treatment data 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.

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.

4.2.5 Within 1 month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter, if during that quarter the total amount accepted exceeds 100 tonnes of non-hazardous waste or 10 tonnes of hazardous waste.

4.2.6 Every quarter, the operator shall report details to the Environment Agency, as specified in Form AIR: F1, of periods of flaring; where the aggregate quantity of gas flared from the installation exceeds 4.0 tonnes/hour, as a daily mean value.

4.2.7 Every quarter, the operator shall report details to the Environment Agency, as specified in Form AIR: F2, of all flaring.

4.2.8 The operator shall keep a record of each flaring event, where the gas flared exceeded 4.0 tonnes/hour, including the cause of the event, whether the event was planned and any action taken to minimise the duration of and/or the impact of flaring.

4.2.9 By 31 January each year the operator shall prepare and submit a report to the Environment Agency on the management of flaring, which includes:

(a) a summary of the root causes of any flaring events reported on form AIR F1, in accordance with condition 4.2.6;

(b) a review of possible improvements to minimise the number and/or impact of all flaring events, with proposals for improvement and timescales for implementation;

(c) progress against any improvement proposals, identified in previous reports submitted in compliance with condition 4.2.8; and

(d) any other actions taken in the previous 12 months to minimise the number and/or impact of flaring events.

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 in a safe and controlled manner 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.

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 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 1.2 Part A(1)(e)(i)(ii) The loading, unloading, handling or storage of, or the physical, chemical or thermal treatment of crude oil and stabilised crude petroleum. Primary activity	Handling and processing crude oil (stabilisation) and stabilised crude petroleum.	Primary activity at the terminal is the stabilisation of crude oil. Stabilised crude storage, loading and handling of stabilised crude petroleum via jetties 1, 2, 4 & 5 and export pipeline.
AR2	Section 1.1 Part A(1)(a) Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more.	**LCP 62** 3 x 31.2 MWth gas turbines 3 x 104 MWth boilers for production of steam	From receipt of process gas/natural gas to discharge of exhaust gases at emission points A8 & A9 and the generation of steam.
		6 x 40 MWth reboilers for heating crude oil	From receipt of process gas to discharge of exhaust gases at emission points A2 to A7.
		Combined Heat & Power (CHP) plant 2 x 278 MWe gas turbines with 2 x 150 MWe steam turbines	Combustion of natural gas from storage or the National Transmission System for the generation of electricity and supply of steam, to discharge of exhaust gases at emission points A20 and A21. Subject to pre-operational conditions in Table S1.4 of this permit.
		New boiler plant for CHP 2 x auxiliary boilers	Combustion of natural gas from storage or the National Transmission System for the supply of steam, to discharge of exhaust gases at emission points A22 and A23. Subject to pre-operational conditions in Table S1.4 of this permit.

Table S1.1 activities				
Activity reference	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity**	
AR3	Section 5.1 Part A(1)(a) The incineration of hazardous waste in a waste incineration plant or waste co-incineration plant with a capacity exceeding 10 tonnes per day.	Routine flaring of waste gases.	From receipt of gas at the main elevated flare to combustion and release of emissions to air at emission point A16. From receipt of gas at the stand-by flare to combustion and release of emissions to air at emission point A17.	Waste incineration limits specified in Annex VI of the IED do not apply to the waste gas.
AR4	Section 5.3 Part A(1)(a)(ii) Disposal of hazardous waste in a facility (other than landfill or incineration) with a capacity of more than 10 tonnes per day by physico-chemical treatment.	Physico-chemical treatment of wastes containing oil (ballast water).	On-site effluent treatment plant	
AR5	Section 5.4 Part A(1)(a)(ii) Disposal of non-hazardous waste in a facility with a capacity of more than 50 tonnes per day by physico-chemical treatment.	Physico-chemical treatment of waste waters and storage of sludge.	On-site effluent treatment plant	
	Directly Associated Activity			
AR6	Non-listed directly associated activity	CHP cooling tower system	-	
AR7	Non-listed directly associated activity	CHP heat recovery generators	-	
AR8	Non-listed directly associated activity	CHP steam turbines	-	
AR9	Non-listed directly associated activity	CHP water treatment plant	-	
AR10	Non-listed directly associated activity	Flaring of vent gases from butane, propane and ethane tanks in three ground flares	From receipt of gas at the flare from the NGL system to combustion and release of emissions to air at emission point A14.	

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application EPR/NP3033LN/A001	The response to sections 2.1 and 2.2 in the Application	07/07/06
Receipt of additional information to the application	Further data provided for Biofilter monitoring and all release points	01/12/06
Receipt of additional information to the application	Use of Biocat system for waste treatment, as in information received.	14/12/06
Schedule 4 Notice Request dated 03/01/07	Application Site Report assessment questions	19/01/07
Variation application EPR/NP3033LN/V003	The response to Section C2.1 in the application	23/07/07
Response to regulation 60(1) Notice – request for information dated 31/10/14	Compliance route and operating techniques identified in response to questions 2 (compliance route), 4 (LCP configuration), 5 (net rated thermal input), 6 (MSUL/MSDL), 9ii (ELVs), 11 (Monitoring requirements).	05/02/15
Receipt of additional information to the regulation 60(1) Notice. requested by letter dated 13/05/15	Compliance routes and operating techniques identified in response to questions 4 (LCP configuration), 5 (net rated thermal input), 6 (MSUL/MSDL) 9 (justification of ELVs and MSUL/MSDL)	19/05/15
Receipt of additional information to the application	Variation application received to update removal of references to LNG plant. Updated with Reg 60(1) Notice.	10/11/15
Variation application EPR/NP3033LN/V006	Non-technical Summary. Environmental Management System, as updated Updated emissions assessment for Boiler Stacks.	10/11/15
Response to Regulation 61 Notice dated 19 November 2015	Technical standards detailed in response to BAT conclusions of the notice provided under Regulation 60 of Environmental Permitting Regulations. Best available techniques as described in BAT conclusions under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions for the refining of mineral oil and gas.	29/01/16
Response to second Regulation 61 Notice dated 23 January 2017	All parts	25/01/17

Table S1.3 Improvement programme requirements		
Reference Note 1	**Requirement**	**Date**
IP10	The Operator shall notify the Agency of the date when the commissioning of the CHP is complete.	Within 7 days of completion
IP11	The Operator shall provide a post commissioning report to the Agency. The report shall include a review of the operational performance of the CHP against the design parameters in the application. A review of process performance and emissions performance shall be included in the report.	Within 3 months of the date notified in IP10
IP12	The Operator shall submit a report on the efficiency of the gas turbine at ISO base load conditions. The report shall compare the performance of the gas turbine with the target efficiency of 75% for CHP systems set out in Chapter III of the Industrial Emission Directive.	Within 3 months of the date notified in IP10
IP13	The Operator shall carry out measurements to verify the predictions contained within the application for Environmental Noise.	Within 12 months of the date notified in IP10
IP14	The Operator shall provide a report on its progress on the implementation and accreditation of its Environmental Management System ISO14001, together with an action plan should accreditation not have been achieved.	Within 12 months of the date notified in IP10
IP15	The Operator shall update the air quality impact assessment submitted with the application to take account of actual emissions from the installation taken from emissions monitoring data form the first 12 months of operation.	Within 15 months of the date notified in IP10
IP20	<u>BAT Conclusion 12</u> The Operator shall undertake an assessment of the effectiveness of the treatment of their effluent at the sewage treatment works and compare this with the effectiveness of on-site treatment using biological treatment and clarification providing details of reduction factors of individual pollutants. The assessment shall take into account the requirements of BAT Conclusion 12 for the Refining of Mineral Oil and Gas. A written report summarising the findings shall be submitted to the Environment Agency, along with a timetable for implementing improvements, if required, and this shall be agreed in writing with the Environment Agency prior to implementation.	28/10/19
IP21	<u>Water Framework Directive</u> The Operator shall submit a written monitoring plan to the Environment Agency for approval that includes proposals to undertake representative monitoring of hazardous pollutants (as set out in the Environment Agency's Surface Water Pollution Risk Assessment guidance) in the discharge to sewer from emission point S1 including the parameters to be monitored, frequencies of monitoring and methods to be used. The Operator shall carry out the monitoring in accordance with the Environment Agency's written approval.	28/10/19

Table S1.3 Improvement programme requirements		
Reference Note 1	**Requirement**	**Date**
IP22	Water Framework Directive The Operator shall submit a written report to the Environment Agency for approval in accordance with the Environment Agency's Surface Water Pollution Risk Assessment Guidance available on our website that includes: • The results of an assessment of the impact of the emissions to surface water from the site following the treatment of the effluent at the sewage treatment works. • The results of an assessment of the impact of the emissions to surface water from the emergency discharge points W1 & W2. • The report shall: - Be based on the parameters monitored in IP21 above; - Include proposals for appropriate measures to mitigate the impact of any emissions where the assessment determines they are liable to cause pollution, including timescales for implementation of individual measures. - Confirm what constitutes an emergency discharge and under what circumstances such a discharge would not lead to a deterioration of the receiving water.	31/03/20

Note 1: Completed improvement conditions have been removed with numbering retained for ease of future reference.

Table S1.4 Pre-operational measures for future development Note 1		
Reference	**Operation**	**Pre-operational measures**
PO1	The Operator shall submit a report to the Agency detailing the proposals for the commissioning programme of the CHP, including proposals to ensure that adequate monitoring is undertaken to prevent pollution.	12 months prior to the start of commissioning of the CHP facilities.
PO2	The Operator shall carry out a review of the final plans prior to the construction to ensure these still accurately reflect those set out in the application and PP permit. The Operator shall submit a report to the Agency detailing the findings of this review.	12 months prior to the start of commissioning of the CHP facilities.
PO3	The Operator shall submit proposals to ensure safe access to key equipment required to minimise the risk of pollution in the event of flooding.	12 months prior to the start of commissioning of the CHP facilities.
PO4	The Operator shall carry out a review of the accident management plan (maintained under permit condition 1.1.1 (a)) and take any appropriate measures identified by the review. A report on the review shall be submitted to the Environment Agency.	6 months prior to the start of commissioning of the CHP facilities.
PO5	The Operator shall carry out a review of the site closure plan (maintained under permit condition 1.1.1 (a)) and take any appropriate measures identified by the review. A report on the review shall be submitted to the Environment Agency.	3 months prior to the start of commissioning of the CHP facilities.

Table S1.4 Pre-operational measures for future development [Note 1]		
Reference	**Operation**	**Pre-operational measures**
PO6	The Operator shall carry out a review of the site condition report (maintained under permit condition 3.1.3) and take any appropriate measures identified by the review. A report on the review shall be submitted to the Environment Agency.	3 months prior to the start of commissioning of the CHP facilities.
PO7	The Operator shall submit a report establishing a protocol for the measurements and calculation of overall energy efficiency of (i) the CHP, (including the conversion to electricity) and (ii) the installation as a whole. The protocol shall take account of energy lost through fugitive emissions and flaring.	3 months prior to the start of commissioning of the CHP facilities.
PO8	The Operator shall notify the Environment Agency of the date when fuel will first be burnt in the CHP / New Boiler Plant.	No later than 2 weeks prior to the fuel being burnt
PO9	Operations shall not commence on the CHP facilities, until the operator has submitted a report in writing to the Environment Agency for approval, demonstrating compliance with Chapter III of the Industrial Emissions Directive and the most recent BAT Conclusions for the Refining of Mineral Oil and Gas, and has obtained written approval from the Environment Agency.	12 months prior to the start of commissioning of the CHP
Note 1: CHP plant emission points defined as A20 to A23 in table S3.1 of this permit.		

Table S1.5 Start-up and Shut-down thresholds		
Emission Point and Unit Reference	**"Minimum Start-Up Load"** **When two of the criteria listed below for the LCP or unit have been met.**	**"Minimum Shut-Down Load"** **When two of the criteria listed below for the LCP or unit have been met.**
A8 & A9 LCP 62	≥31.083 MW (30% MCR) Superheated steam in at 55.5 Barg Superheated steam temperature 427 ^{0}C	<31.083 MW (30% MCR) Superheated steam in at <55.5 Barg Superheated steam temperature <427 ^{0}C

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	**Specification**
Process gas	Less than 200 ppm sulphur (monthly average)

Table S2.2 Permitted waste types and quantities for receipt and treatment of ballast water	
Maximum quantity	**N/A**
Waste code	Description
16 07 08 *	Wastes containing oil (ballast water)

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – Shall apply from 28 October 2018						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
Reboilers fired on process gas						
A2, A3, A4, A5, A6 & A7	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	Low NOx burners on Stabilisation train Reboiler Exhausts - 40 MWth each	150 mg/Nm³ Note 1	Monthly average	Continuous	BS EN 14181 Note 2
A2, A3, A4, A5, A6 & A7	Oxides of Nitrogen (NO and NO2 expressed as NO2)	Low NOx burners on Stabilisation train Reboiler Exhausts - 40 MWth each	300mg/Nm³ Note 1	Hourly Average	Continuous	BS EN 14181 Note 2
A2, A3, A4, A5, A6 & A7	Carbon Monoxide	Low NOx burners on Stabilisation train Reboiler Exhaust - 40 MWth each	35 to 50 mg/Nm³ Note 1	Monthly average	Continuous	BS EN 14181 Note 2
A2, A3, A4, A5, A6 & A7	Carbon Monoxide	Low NOx burners on Stabilisation train Reboiler Exhaust - 40 MWth each	70mg/m³ Note 1	Hourly Average	Continuous	BS EN 14181 Note 2
A2, A3, A4, A5, A6 & A7	Sulphur Dioxide	Low NOx burners on Stabilisation train Reboiler Exhausts - 40 MWth each	35 mg/Nm³ Note 1	Monthly average	Direct or Indirect monitoring at least one per calendar year when burning process gas	BS EN 14791 or as agreed in writing with the Environment Agency

Table S3.1 Point source emissions to air – Shall apply from 28 October 2018						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
LCP Fired on process gas						
A8 & A9	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP No. 62 (x 3 gas turbines and x 3 boilers) 3 x 31.2 MWth gas turbines 3 x 104 MWth boilers	90 mg/Nm^3 Note 6	Monthly average	Continuous	BS EN 14181 Note 2
A8 & A9	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP No. 62 (x 3 gas turbines and x 3 boilers)	90 mg/Nm^3 Note 6 LCP Chapter III IED	Daily mean of validated hourly averages	Continuous	BS EN 14181 Note 2
A8 & A9	Oxides of Nitrogen (NO and NO2 expressed as NO_2)	LCP No. 62 (x 3 gas turbines and x 3 boilers)	90 mg/Nm^3 Note 6 LCP Chapter III IED	Hourly average	Continuous	BS EN 14181 Note 2
A8 & A9	Carbon Monoxide	LCP No. 62 (x 3 gas turbines and x 3 boilers)	12 mg/Nm^3 Note 6	Monthly average	Continuous	BS EN 14181 Note 2
A8 & A9	Carbon Monoxide	LCP No. 62 (x 3 gas turbines and x 3 boilers)	23 mg/Nm^3 Note 6 LCP Chapter III IED	Hourly average	Continuous	BS EN 14181 Note 2
A8 & A9	Sulphur Dioxide	LCP No. 62 (x 3 gas turbines and x 3 boilers)	12 mg/Nm^3 Note 6	Monthly average	Continuous	BS EN 14181 Note 2

Table S3.1 Point source emissions to air – Shall apply from 28 October 2018						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A8 & A9	Sulphur Dioxide	LCP No. 62 (x 3 gas turbines and x 3 boilers)	13 mg/Nm^3 Note 6 LCP Chapter III IED	Daily mean of validated hourly averages	Continuous	BS EN 14181 Note 2
A8 & A9	Sulphur Dioxide	LCP No. 62 (x 3 gas turbines and x 3 boilers)	17 mg/Nm^3 Note 6 LCP Chapter III IED	Hourly average	Continuous	BS EN 14181 Note 2
A8 & A9	Dust	LCP No. 62 (x 3 gas turbines and x 3 boilers)	2 mg/Nm^3 Note 6	Hourly average	Continuous	BS EN 14181 Note 2
A8 & A9	Oxygen	LCP No. 62 (x 3 gas turbines and x 3 boilers)	-	-	Continuous As appropriate to reference	BS EN 14181 Note 2
A8 & A9	Stack gas temperature	LCP No. 62 (x 3 gas turbines and x 3 boilers)	-	-	Continuous As appropriate to reference	Traceable to national standards
A8 & A9	Stack gas pressure	LCP No. 62 (x 3 gas turbines and x 3 boilers)	-	-	Continuous As appropriate to reference	Traceable to national standards

Table S3.1 Point source emissions to air – Shall apply from 28 October 2018						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
LCP Fired on natural gas Note 11						
A8 & A9 Note 12	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP No. 62 (x 3 gas turbines and x 3 boilers)	90 mg/Nm^3 Note 6 LCP Chapter III IED	Monthly average	Continuous	BS EN 14181 Note 2
A8 & A9 Note 12	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP No. 62 (x 3 gas turbines and x 3 boilers)	90 mg/Nm^3 Note 6 LCP Chapter III IED	Daily mean of validated hourly averages	Continuous	BS EN 14181 Note 2
A8 & A9 Note 12	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP No. 62 (x 3 gas turbines and x 3 boilers)	90 mg/Nm^3 Note 6 LCP Chapter III IED	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181 Note 2
A8 & A9	Carbon Monoxide	LCP No. 62 (x 3 gas turbines and x 3 boilers)	34 mg/Nm^3 LCP Chapter III IED	Monthly average	Continuous	BS EN 14181 Note 2
A8 & A9	Carbon Monoxide	LCP No. 62 (x 3 gas turbines and x 3 boilers)	37 mg/Nm^3 LCP Chapter III IED	Daily mean of validated hourly averages	Continuous	BS EN 14181 Note 2
A8 & A9	Carbon Monoxide	LCP No. 62 (x 3 gas turbines and x 3 boilers)	67 mg/Nm^3 LCP Chapter III IED	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181 Note 2
A8 & A9	Oxygen	LCP No. 62 (x 3 gas turbines and x 3 boilers)	-	-	Continuous As appropriate to reference	BS EN 14181 Note 2
A8 & A9	Stack gas temperature	LCP No. 62 (x 3 gas turbines and x 3 boilers)	-	-	Continuous As appropriate to reference	Traceable to national standards

Table S3.1 Point source emissions to air – Shall apply from 28 October 2018						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A8 & A9	Stack gas pressure	LCP No. 62 (x 3 gas turbines and x 3 boilers)	-	-	Continuous As appropriate to reference	Traceable to national standards
Gas turbine fired on natural gas						
A11	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	Gas Turbine Standby stack 3 x 31.2 MWth gas turbines	No limit set Note 6	-	Concentration by calculated every 4380 hours or 2 years whichever soonest	As agreed in writing with the Environment Agency
A11	Carbon Monoxide	Gas Turbine Standby stack 3 x 31.2 MWth gas turbines	No limit set Note 6	-	Concentration by calculated every 4380 hours or 2 years whichever soonest	As agreed in writing with the Environment Agency
A12	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	Gas Turbine Standby stack 3 x 31.2 MWth gas turbines	No limit set Note 6	-	Concentration by calculated every 4380 hours or 2 years whichever soonest	As agreed in writing with the Environment Agency
A12	Carbon Monoxide	Gas Turbine Standby stack 3 x 31.2 MWth gas turbines	No limit set Note 6	-	Concentration by calculated every 4380 hours or 2 years whichever soonest	As agreed in writing with the Environment Agency

Table S3.1 Point source emissions to air – Shall apply from 28 October 2018						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A13	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	Gas Turbine Standby stack 3 x 31.2 MWth gas turbines	No limit set Note 6	-	Concentration by calculated every 4380 hours or 2 years whichever soonest	As agreed in writing with the Environment Agency
A13	Carbon Monoxide	Gas Turbine Standby stack 3 x 31.2 MWth gas turbines	No limit set Note 1	-	Concentration by calculated every 4380 hours or 2 years whichever soonest	As agreed in writing with the Environment Agency
Gas turbine fired on process gas						
A11	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	Gas Turbine Standby stack 3 x 31.2 MWth gas turbines	No limit set Notes 1 & 9	-	Concentration by calculated every 4380 hours or 2 years whichever soonest	As agreed in writing with the Environment Agency
A11	Carbon Monoxide	Gas Turbine Standby stack 3 x 31.2 MWth gas turbines	No limit set Notes 1 & 9	-	Concentration by calculated every 4380 hours or 2 years whichever soonest	As agreed in writing with the Environment Agency
A12	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	Gas Turbine Standby stack 3 x 31.2 MWth gas turbines	No limit set Notes 1 and 9	-	Concentration by calculated every 4380 hours or 2 years whichever soonest	As agreed in writing with the Environment Agency

Table S3.1 Point source emissions to air – Shall apply from 28 October 2018						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A12	Carbon Monoxide	Gas Turbine Standby stack 3 x 31.2 MWth gas turbines	No limit set Notes 1 & 9	-	Concentration by calculated every 4380 hours or 2 years whichever soonest	As agreed in writing with the Environment Agency
A13	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	Gas Turbine Standby stack 3 x 31.2 MWth gas turbines	No limit set Notes 1 & 9	-	Concentration by calculated every 4380 hours or 2 years whichever soonest	As agreed in writing with the Environment Agency
A13	Carbon Monoxide	Gas Turbine Standby stack 3 x 31.2 MWth gas turbines	No limit set Notes 1 & 9	-	Concentration by calculated every 4380 hours or 2 years whichever soonest	As agreed in writing with the Environment Agency
Flares						
A14	Sulphur Dioxide	Cold ground flare stack (normal operation)	-	-	-	-
A16	Sulphur Dioxide	122m elevated flare stack (normal operation)	-	-	-	-
A17	Sulphur Dioxide	82m elevated flare stack (Standby)	-	-	-	-
VOC recovery unit						
A19	Non methane Volatile Organic Compounds (NMVOC)	VOC recovery unit	-	-	Calculated monthly	As agreed in writing with the Environment Agency

Table S3.1 Point source emissions to air – Shall apply from 28 October 2018						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A19	Benzene	VOC recovery unit	-	-	Calculated monthly	As agreed in writing with the Environment Agency
CHP gas turbines fired on natural gas with process duct firing Note 10						
A20 & A21	Oxides of Nitrogen (No and NO_2 expressed as NO_2)	Gas turbine exhaust stacks 1 & 2 2 x 278 MWe	50 mg/Nm^3 Notes 6 & 7	Monthly average	Continuous	BS EN 15267-3 Note 2
A20 & A21	Oxides of Nitrogen (No and NO_2 expressed as NO_2)	Gas turbine exhaust stacks 1 & 2	50 mg/Nm^3 Notes 6 & 7	Daily Limit Note 3	Continuous	BS EN 15267-3 Note 2
A20 & A21	Oxides of Nitrogen (No and NO_2 expressed as NO_2)	Gas turbine exhaust stacks 1 & 2	100 mg/Nm^3 Notes 6 & 8	Hourly Limit Note 4	Continuous	BS EN 15267-3 Note 2
A20 & A21	Carbon Monoxide	Gas turbine exhaust stacks 1 & 2	100 mg/Nm^3 Note 6	Monthly average	Continuous	BS EN 15267-3 Note 2
			100 mg/Nm^3 Note 6	Periodic over min 4 hour period	Every 6 months	BS EN 15058
A20 & A21	Sulphur Dioxide	Gas turbine exhaust stacks 1 & 2	10 mg/Nm^3 Note 6	Daily Limit Note 3	Continuous	BS EN 15267-3 Note 2
A20 & A21	Sulphur Dioxide	Gas turbine exhaust stacks 1 & 2	20 mg/Nm^3 Note 6	Hourly Limit Note 4	Continuous	BS EN 15267-3 Note 2
A20 & A21	Dust	Gas turbine exhaust stacks 1 & 2	10 mg/Nm^3 Note 6	Daily Limit Note 3	Continuous	BS EN 15267-3 Note 2

Table S3.1 Point source emissions to air – Shall apply from 28 October 2018						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A20 & A21	Dust	Gas turbine exhaust stacks 1 & 2	20 mg/Nm^3 Note 6	Hourly Limit Note 4	Continuous	BS EN 15267-3 Note 2
CHP auxiliary boilers fired on natural gas Note 10						
A22 & A23	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	Auxiliary Boiler Exhaust 1 & 2 2 x 150 MWe	150 mg/Nm^3 Note 1	Daily limit Note 3	Continuous	BS EN 15267-3 Note 2
A22 & A23	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	Auxiliary Boiler Exhaust 1 & 2	300 mg/Nm^3 Note 1	Hourly limit Note 4	Continuous	BS EN 15267-3 Note 2
A22 & A23	Carbon Monoxide	Auxiliary Boiler Exhaust 1 & 2	150 mg/Nm^3 Note 1	Periodic over a min 4 hour period	Every 6 Months Note 5	BS EN 15058
A22 & A23	Sulphur Dioxide	Auxiliary Boiler Exhaust 1 & 2	No limit Note 1	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
A22 & A23	Dust	Auxiliary Boiler Exhaust 1 & 2	No limit Note 1	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
CHP auxiliary boilers fired on process gas Note 10						
A22 & A23	Oxides of Nitrogen (No and NO_2 expressed as NO_2)	Auxiliary Boiler Exhaust 1 & 2	150 mg/Nm^3 Note 1	Monthly average	Continuous	BS EN 15267-3 Note 2

Table S3.1 Point source emissions to air – Shall apply from 28 October 2018						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A22 & A23	Oxides of Nitrogen (No and NO_2 expressed as NO_2)	Auxiliary Boiler Exhaust 1 & 2	165 mg/Nm^3 Note 1	Daily limit Note 3	Continuous	BS EN 15267-3 Note 2
A22 & A23	Oxides of Nitrogen (No and NO_2 expressed as NO_2)	Auxiliary Boiler Exhaust 1 & 2	300 mg/Nm^3 Note 1	Hourly Limit Note 4	Continuous	BS EN 15267-3 Note 2
A22 & A23	Carbon Monoxide	Auxiliary Boiler Exhaust 1 & 2	100 mg/Nm^3 Note 1	Monthly average	Continuous	BS EN 15267-3 Note 2
			150 mg/Nm^3 Note 1	Periodic over a min 4 hour period	Every 6 Months Note 5	BS EN 15058
A22 & A23	Sulphur Dioxide	Auxiliary Boiler Exhaust 1 & 2	35 mg/Nm^3 Note 1	Monthly average	Continuous	BS EN 15267-3 Note 2
A22 & A23	Sulphur Dioxide	Auxiliary Boiler Exhaust 1 & 2	35 mg/Nm^3 Note 1	Daily limit Note 3	Continuous	BS EN 15267-3 Note 2
A22 & A23	Sulphur Dioxide	Auxiliary Boiler Exhaust 1 & 2	70 mg/Nm^3 Note 1	Hourly limit Note 4	Continuous	BS EN 15267-3 Note 2
A22 & A23	Dust	Auxiliary Boiler Exhaust 1 & 2	5 mg/Nm^3 Note 1	Daily limit Note 3	Continuous	BS EN 15267-3 Note 2

Table S3.1 Point source emissions to air – Shall apply from 28 October 2018						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A22 & A23	Dust	Auxiliary Boiler Exhaust 1 & 2	10 mg/Nm^3 Note 1	Hourly limit Note 4	Continuous	BS EN 15267-3 Note 2

Note 1: Normalised to 273k, 101.3 kPa, dry and 3% v/v O_2 dry gas.

Note 2: The Operator shall carry out checks for functionality and to verify performance as specified in BS EN 14181:2014 unless otherwise agreed in writing with the Environment Agency.

Note 3: Daily average of validated hourly averages not to exceed limit.

Note 4: 95% of validated hourly averages not to exceed limit.

Note 5: Except that the plant shall not be run just for the purpose of emission monitoring.

Note 6: Normalised to 273k, 101.3 kPa, dry and 15% v/v O_2 dry gas.

Note 7: 75 mg/m^3 where the overall efficiency on the CHP is greater than 75%.

Note 8: 150 mg/m^3, where the overall efficiency of the CHP is greater than 75%.

Note 9: We have not set the limits from the Refinery BAT Conclusions at emission points A11 to A13 based on the limited operation in this configuration.

Note 10: Subject to completion of the pre-operational conditions in Table S1.4 of this permit.

Note 11: Firing on natural gas shall only take place during planned maintenance, start-up, shut-down and during periods where process gas is unavailable. Refer to the response submitted under IC19 in table S1.3 of this permit.

Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point ref. & location Note 1	**Parameter**	**Source**	**Limit (incl. unit)**	**Reference period**	**Monitoring frequency** Note 2	**Monitoring standard or method** Note 3
W1 Emission to River Tees	Total hydrocarbon oil content (FTIR method)	Effluent Treatment Plant	20 mg/l	Composite flow proportional sample	24 hour average	FTIR
W1 Emission to River Tees	Chemical Oxygen Demand (COD)	Effluent Treatment Plant	12 tonnes/day	Composite flow proportional sample	24 hour average	Titrimetric
W1 Emission to River Tees	Sulphide	Effluent Treatment Plant	10 mg/l	Composite flow proportional sample	24 hour average	Colormetric
W1 Emission to River Tees	Total suspended solids	Effluent Treatment Plant	100 mg/l	Composite flow proportional sample	24 hour average	Gravimetric
W1 Emission to River Tees	Metals	Effluent Treatment Plant	No limit set	Monthly composite sample	Monthly	ICP
W1 Emission to River Tees	pH	Effluent Treatment Plant	5.5 – 9	Composite flow proportional sample	24 hour average	pH meter
W1 Emission to River Tees	Temperature	Effluent Treatment Plant	No limit set	24 hour average	Continuous	Thermocouple
W1 Emission to River Tees	Flow	Effluent Treatment Plant	18,000 m^3/day	24 hour average	Continuous	Flow-meter
W2 Emission to River Tees	Total hydrocarbon oil content (FTIR method)	Greatham Surge Pond	20 mg/l	24 hour average	24 hour average	FTIR
W2 Emission to River Tees	Visible oil and grease	Greatham Surge Pond	No visible emission	-	Daily	Visual
W2 Emission to River Tees	Flow	Greatham Surge Pond	10,800 m^3/day	24 hour average	Continuous	Flow-meter

Note 1: Emissions only to occur under abnormal or emergency conditions when effluent cannot be recovered or treated.

Note 2: Monitoring not required during periods of no flow.

Note 3: Methods used are in house methods as stated in Table 2.10 (b) of the IPPC application.

Table S3.3 Point source emissions to sewer, effluent treatment plant or other transfers off-site– emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (incl. Unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
S1 Emission to Northumbrian Water Bran Sands Treatment Facility	Flow	Site effluent treatment plant	No limit set Note 1	24 hour average	Continuous	Flow-meter
	Other parameters	Site effluent treatment plant	No limit set Note 1	-	-	-
Note 1: No limits are currently set, discharge is subject to a trade effluent consent and the outcome of IC21 & IC22 in Table S1.3 of this permit.						

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**
A18 – ETP (Effluent Treatment Plant)	Hydrogen Sulphide	Monthly	Gas Chromatography (Limit is 75% removal of parameter from inlet stream)	Does not apply during shell renewal
A18 – ETP (Effluent Treatment Plant)	Benzene	Monthly	Gas Chromatography (Limit is 55% removal of parameter from inlet stream)	Does not apply during shell renewal
Process Gas Monitoring	Mercury	6 monthly	BS ISO 6978 Part 2	Sampling to be undertaken at locations within the process gas system that are representative of the process gas composition burnt in major combustion units.

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**
A16 and A17 Flaring events	Duration of event Total mass of gas flared Mass of SO_2 released Calorific value of the gas flared	When the rate of gas flared exceeds 4.0 tonnes/hour	SO_2 may be determined by analysis of the flare gas or by application of emission factors.	The operator shall identify the root cause of the flaring event and consider ways to prevent or reduce the frequency and duration of reoccurrence.
A19 VOC Recovery Unit	Recovery rate	During ocean going crude oil tanker loading	Calculation by method to be agreed in writing with the Environment Agency.	Recovery rate ≥ 85%

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**
Emissions to air Parameters as required by condition 3.5.1	LCP 62 A8 & A9	Every 3 months for continuous monitoring	1 January, 1 April, 1 July, 1 October
	A2 to A7 A16, A17 A18 A20 to A23 Process gas	Every 6 months	1 January, 1 July
	A11 to A13 A19	Every 12 months	1 January
Emissions to water and sewer Parameters as required by condition 3.5.1	W1, W2 & S1	Every 6 months	1 January, 1 July
Number of hours of non-zero flow	W1 & W2	Every 6 months	1 January, 1 July

Table S4.2: Annual production/treatment	
Parameter	**Units**
Power generated	GWhr
Crude oil stabilised	Tonnes
NGL produced	Tonnes

Table S4.3 Chapter III Performance parameters for reporting to DEFRA and other Performance parameters		
Parameter	**Frequency of assessment**	**Units**
Thermal Input Capacity for each LCP	Annually	MW
Annual Fuel Usage for each LCP	Annually	TJ
Total Emissions to Air of NO_x for each LCP	Annually	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
Natural gas usage Note 1	Annually	t
Distillate fuel oil usage	Annually	t

Table S4.3 Chapter III Performance parameters for reporting to DEFRA and other Performance parameters		
Parameter	**Frequency of assessment**	**Units**
Total available energy Note 2	Annually	MJ
Net electricity Note 3	Annually	MWh
Total mass release of oxides of sulphur (as SO_2) to air	Annually	T
Total mass release of oxides of nitrogen (as NO_2) to air	Annually	T
Total mass release of volatile organic carbon to air	Annually	T
Total mass release of particulate matter to air	Annually	T
Water usage	Annually	M^3
Overall energy efficiency of the CHP Note 4	Annually	%
Gas turbine stack usage emission points A11 to A13	Annually	Number of occasions, cumulative hours and cause.

Note 1: Natural Gas usage shall be calculated as the quantity of gas drawn from the public supply. It shall comprise both the gas burnt in the CHP or boiler plant and any losses to atmosphere or flaring.

Note 2: Available energy shall be calculated by summing the usage of each fuel multiplied by its calorific value.

Note 3: Net Electricity shall be the amount of electricity consumed at the installation, i.e. the amount generated plus the amount imported from the National Grid less the amount exported to the National Grid.

Note 4: Energy efficiency shall be calculated using the protocol agreed in pre-operation condition PO7 of this permit.

Note 5: Standard temperature and pressure 15ºC and 1.01325 BarA (dry).

Table S4.4 Reporting forms				
Media/ Parameter	**Reporting format**	**Starting Point**	**Agency recipient**	**Date of form**
Air & Energy	Form IED AR1 – SO_2, NO_x and dust mass emission and energy	01/01/16	National	31/12/15
LCP	Form IED HR1 – operating hours	01/01/16	National	2018
Air	Form IED CON 2 – continuous monitoring.	01/01/16	Area Office	2018
CEMs	Form IED CEM1 – Invalidation Log	01/01/16	Area Office	2018
Air	Form Air 1 – None LCP	28/10/18	Area Office	2018
Air	Form Air 2 – A11 to A13	28/10/18	Area Office	2018
Air - Flares	Form Air – F1 Reporting form for non-routine flaring	28/10/18	Area Office	2018
Air - Flares	For Air – F2 Reporting form for total flaring	28/10/18	Area Office	2018
Water & Sewer	Form water & sewer 1 or other form as agreed in writing by the Environment Agency	01/01/16	Area Office	2018
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	01/01/16	Area Office	2018
Process	Form Process 1 or other form as agreed in writing by the Environment Agency	28/10/18	Area Office	2018
Air	Form Air – 4 NERP allocation log or other form as agreed in writing by the Environment Agency (See IC16)	01/01/08	Area Office	

Schedule 5 – Notification

These pages outline the information that the operator must provide.

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

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

Part A

Permit Number	**EPR/NP3033LN**
Name of operator	**ConocoPhillips Petroleum Company UK Ltd**
Location of Facility	**Seal Sands, Middlesbrough, TS2 1UH**
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

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

Time periods for notification following detection of a breach of a limit	
Parameter	Notification period

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B – to be submitted as soon as practicable

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

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

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

“annually” means once a year.

“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.

“average value” BAT AELs refer to the average value, for periodic measurements this means three spot samples of at least 30 minutes each.

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

for emissions to surface water, the surface water quality up-gradient of the site.

“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.

“BAT” means best available techniques, as defined in Article 3 of the Industrial Emissions Directive.

“BAT AEL” means the achievable emission level associated with application of the best available techniques.

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

“CEN” means Commité 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.

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

“DLN” means dry, low NO_x burners.

“emissions to land” includes emissions to groundwater.

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

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

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

“flaring event” means a large scale temporary operation of the flare system, caused by process disruption.

“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.

“Hazardous property” has the meaning in Annex III of the Waste Framework Directive.

“Hazardous waste” has the meaning given in the Hazardous Waste (England and Wales) Regulations 2005 (as amended).

“Indirect monitoring of emissions to air” means the estimation of the emissions concentration in the flue-gas of a pollutant obtained through an appropriate combination of measurements of surrogate parameters (such as O_2 content, sulphur or nitrogen content in the feed/fuel), calculations and periodic stack measurements.

The use of emission ratios based on S content in the fuel is one example of indirect monitoring. Another example of indirect monitoring is the use of PEMS.

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

“List of Wastes” means the list of wastes established by Commission Decision 2000/532/EC replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste, as amended from time to time.

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

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

“MCR” means maximum continuous rating.

“monthly average” BAT AELs refer to monthly average values, for continuous measurements, this means the averages of all valid hourly average values measured over a period of one month.

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

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

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

“ncv” means net calorific value.

“Nm^3” means normal cubic meter (volume at 101.325 kPa, 273 K).

“Normal operation” means the range of process conditions that can occur when a process unit is performing its intended duty.

“Off-gas” means a gas stream produced by a refining process.

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

“Other than normal operating conditions” means process conditions that would not occur during the normal operation of a process unit.

“Predictive Emissions monitoring system (PEMS)” means the system to determine the emissions concentration of a pollutant based on its relationship with a number of characteristic continuously monitored process parameters (e.g. fuel-gas consumption, air/fuel ratio) and fuel or feed quality data (e.g. the sulphur content) of an emission source.

“Process gas” means gaseous fuel for use in the installation, derived from off-gas from the stabilisation of crude oil.

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

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

“Recovery rate” means the “percentage of NMVOC recovered from the streams conveyed into a vapour recovery unit (VRU).

“The BREF” means the BAT Reference Document for the Refining of Mineral Oil and Gas published by the European commission 2014/738/EU.

“Waste code” means the six digit code referable to a type of waste in accordance with the List of Wastes and in relation to hazardous waste, includes the asterisk.

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 providing air to a steam 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.

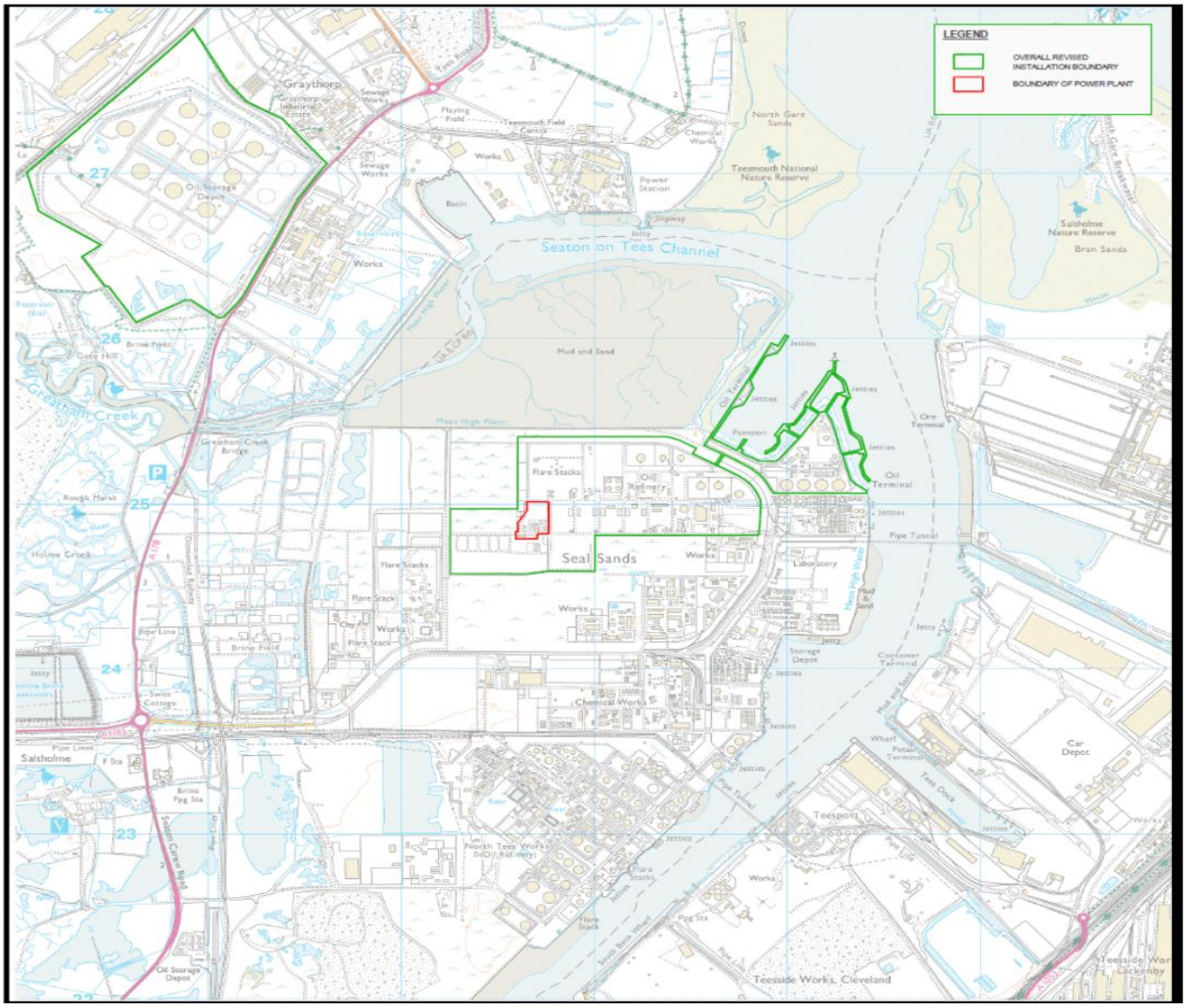
“year” means calendar year ending 31 December.

“fugitive emission” means an emission to air, water or land from the activities which is not controlled by an emission or background concentration limit.

“notify without delay” / ”notified without delay” means that a telephone call can be used, whereas all other reports and notifications must be supplied in writing, either electronically or on paper.

“CEM” means MCERTs certified Continuous Emissions Monitor.

Schedule 7 – Site plan



END OF PERMIT