



Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

IGas Energy Production Limited

Palmers Wood Oilfield
Rook's Nest and Coney Hill
Godstone
Surrey
RH9 8DE

Variation application number

EPR/YP3237YS/V002

Permit number

EPR/YP3237YS

Palmers Wood Oilfield

Permit number EPR/YP3237YS

Introductory note

This introductory note does not form a part of the permit

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.

This variation is to add or change -

- 1) Installation Activities, Oil storage and handling has been changed to a schedule 1.2 A(1)(e)(i) activity under the Industrial Emissions Directive and updated Environmental Permitting (England and Wales) Regulations 2016, as a result of renumbering of schedule 1 activities in the updated regulations. This activity was previously permitted as 1.2A(1)(h)(i) in the existing permit. The existing oil storage activities on site have not changed from those currently permitted. The surface water discharge at Rook's Nest to Gibbs Brook (A5) is a directly associated activity of the Installation activity.
- 2) A Mining Waste Operation, as defined by the Mining Waste Directive (2006/21/EC) and Schedule 20 of the Environmental Permitting (England and Wales) Regulations 2016, as amended, relating to the management of extractive waste not involving a Mining Waste Facility. The permit is being varied to include activities specified by the approved Waste Management Plan. This includes flaring of gas (less than 10 tonnes per day), venting of gas from storage tanks, well maintenance and well workovers. Well maintenance includes hot oil washing, wax dissolver treatment and acid treatment for scale removal. These are not new activities, and were previously covered by the operators operating techniques in their existing permit.
- 3) A Groundwater Activity, as defined by the Groundwater Directive and Schedule 22 of the Environmental Permitting (England and Wales) Regulations 2016, as amended, for the re-injection of produced and treated site surface water for production support. The operator has submitted a hydrogeological risk assessment for this groundwater activity as part of this application. There are 3 reinjection boreholes into the Corallian Sandstone formation, PW02 and PW03 at Rook's Nest and PW09 at Coney Hill. PW09 at Coney Hill is subject to meeting the additional pre-operational conditions specified in Table S1.4 prior to reinjection activities commencing. Groundwater activities for reinjection of produced water were previously permitted as a directly associated activity under the previous permit. As the effluent type and receiving formation are the same, these 3 reinjection boreholes are treated as one groundwater activity.

The activities on site have not changed significantly from those currently permitted. This permit variation and consolidation is part of an onshore oil and gas sector wide review. There are no other changes to the permit.

The installation comprises two associated oil production sites at Rook's Nest and Coney Hill, near Godstone in Surrey, which are linked by an underground pipeline. Crude oil is extracted at both facilities from the Jurassic Corallian Sandstone Formation. There are four wells currently operational at the site, two at the Rooks Nest facility (PW06 and PW10) and two at the Coney Hill facility (PW05 and PW08), and a number of historic wells that are currently not in production (two at the Rooks Nest facility, PW01 and PW07, and one at Coney Hill PW09). Production fluids (crude oil, reservoir water and associated gas) extracted from Coney Hill Well site is pumped through an underground pipeline to the Rook's Nest Well Site where it is combined with crude oil, reservoir water and associated gas extracted from the Rook's Nest Well Site. The production fluids

are heated in a water bath heater, prior to passing through a 3-phase separator to remove the associated water and gas. The oil is then sent to one of three bulk storage tanks for temporary storage prior to road tanker transport to either a refinery or the Holybourne Oil Terminal. The total oil storage capacity is 2,128 bbls or 282 tonnes. The produced water is stored in two tanks at Rook's Nest before re-injection into the oil reservoir via two wells on the site (PW02 and PW03). Reinjection at Coney Hill using well PW09 is currently suspended, but could be used again in the future, subject to compliance with the pre-operational conditions. The associated gas, released in the separator, is utilised as a fuel gas for the water bath heater. Any surplus gas is combusted in the onsite ground flare. Small quantities of methane and non-methane VOCs are released from the stored crude oil via a vent stack. Electrical power for the sites is sourced from the national grid.

Mining waste is generated from routine well maintenance activities and well work overs. During the abstraction process wax and scale can precipitate from the well fluids and be deposited on the walls of the tubing, casing, rods and pumps. The deposition if left untreated will result in poor production efficiency and mechanical failure of the pumping system. Typical mechanical failures include broken rods, seized pumps and plugged tubulars. To prevent the loss of produced fluids and mechanical failures well maintenance activities are routinely carried out on the pumping systems. These include hot oil washing, wax dissolver treatment and acid treatment. In all cases this involves circulating fluids around the well pumping system to dissolve the deposits. These activities can be considered preventive maintenance measures, that if not carried out would lead to a complete pumping system failure. The rectification of the failure is high cost and a greater operational and environmental risk.

The principal releases into the environment comprise of:

- (a) Emissions of combustion gases (CO₂, CO, NO_x) from the water bath heater and ground flare.
- (b) Emissions to air of gaseous hydrocarbons from separation of volatiles in storage.
- (c) Emissions of gaseous hydrocarbons from the road tanker by displacement on loading.
- (d) Rainwater that collects at the low point of the Rook's Nest Well Site to Gibbs Brook. This rainwater is discharged to the brook using a diesel powered pump.
- (e) Engineering waste resulting from maintenance work to a licensed waste disposal facility.
- (f) Reinjection of produced water and treated site surface water to the oil reservoir for production support.

The installation operates an Integrated Management System which is externally audited to ISO14001 and 9001. There are no European designated sites within 10 km of the installation. The installation has two SSSIs within 2km. The closest is Woldingham & Oxted Downs, situated 0.7 km north of the installation.

The schedules specify the changes made to the permit.

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 EPR/YP3237YS/V002	Duly made 30/08/2006	
Additional information received	16/02/2007	
Permit determined (EPR/PP3637LC)	29/06/2007	Original permit issued.
Transfer of permit EPR/PP3637LC (new permit number EPR/JP3230XD)	22/01/2008	Variation notice issued.
Permit transferred EPR/RP3433FD	01/04/2011	Full transfer of permit to Star Energy Weald Basin Limited

Status log of the permit		
Description	Date	Comments
Notice of change of registered office address	03/01/2012	
Variation notice EPR/JP3230XD/V002	07/02/2012	Varied permit issued.
Full transfer of permit (new permit number EPR/XP3831CL)	06/08/2012	Full transfer of permit to Island Gas Limited.
Application EPR/XP3831CL/V002 (variation and consolidation under permit review)	Duly made 07/02/2017	Application to vary to add a mining waste operation and groundwater activities and update the permit to modern conditions.
Full transfer application EPR/YP3237YS/T001 (full transfer of permit EPR/XP3831CL)	Duly Made 23/08/2017	
Transfer determined EPR/YP3237YS	23/10/2017	Full transfer of permit to IGas Energy Production Limited.
Schedule 5 notice response received	23/08/2017 and additional information on 02/02/2018 and 10/01/2019	Response to schedule 5 notice – additional information received
Notice of change of registered office address	20/03/2018	
Permit variation and consolidation under permit review (Original application EPR/XP3831CL/V002) determined as EPR/YP3237YS/V002 (following permit transfer) (PAS Billing ref. EP3133YD, EAWML 403878)	30/01/2019	Varied and consolidated permit issued in modern condition format.

Other permits relating to this installation		
Operator	Permit number	Date of issue
IGas Energy Production Limited	Bespoke radioactive substances permit for NORM wastes from oil and gas production. Original application ZB3094DJ Revised application following EPR permit transfer on 23/10/07 determined as NB3292DH.	30/01/2019

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/YP3237YS

Issued to

IGas Energy Production Limited (“the operator”),

whose registered office is

C/O Womble Bond Dickinson (UK) LLP Level 6

124-125 Princes Street

Edinburgh

EH2 4AD

company registration number: **SC298739**

to operate an installation and a mining waste operation and groundwater activity at

Palmers Wood Oilfield

Rook's Nest and Coney Hill

Godstone

Surrey

RH9 8DE

to the extent set out in the schedules.

The notice shall take effect from 30/01/2019

Name	Date
Principal Permitting Team Leader	30/01/2019

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, and as a result of the application made by the operator.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/YP3237YS

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/YP3237YS/V002 authorising,

IGas Energy Production Limited (“the operator”),

whose registered office is

**C/O Womble Bond Dickinson (UK) LLP Level 6
124-125 Princes Street
Edinburgh
EH2 4AD**

company registration number: **SC298739**

to operate an installation and a mining waste operation and a groundwater activity at:

**Palmers Wood Oilfield
Rook's Nest and Coney Hill
Godstone
Surrey
RH9 8DE**

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

Name	Date
Principal Permitting Team Leader	30/01/2019

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, so far as is practicable, including those risks 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 the permit.

1.2 Energy efficiency

1.2.1 For the following activities referenced in schedule 1, table S1.1 (A1-A5) The operator shall:

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

1.3 Efficient use of raw materials

1.3.1 For the following activities referenced in schedule 1, table S1.1 (A1-A5) 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 A1-A6 shall not extend beyond the site, being the land shown edged in green on the site plans at schedule 7 to this permit.
- 2.2.2 The groundwater activity (A7) referenced in schedule 1 table S1.1 shall take place at the discharge points marked on the site plans at schedule 7 to this permit.
- 2.2.3 The discharge shall be made from the wellbores within the Corallian Sandstone Formation as listed in tables S1.1 and S3.3; and the operating techniques that are the subject of conditions prefixed by condition 2.3 shall be applied at the locations, or otherwise described, in schedule 7.

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 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.
- 2.3.3 The re-injection borehole system shall comply with the following:
- (a) no re-injection borehole shall extend below the depth specified in table S1.1;
 - (b) the re-injection borehole shall comply with the minimum depth below ground level for un-perforated liningsspecified in table S1.1;
 - (c) the outlet of the re-injection borehole, including any associated diffusers, shall be within the saturation zone at all times;
 - (d) no part of the re-injection borehole system shall be situated within 10 metres of any watercourse (including any ditch that runs dry for part of the year), or any other surface water;
 - (e) no part of the re-injection borehole system shall be situated within a SPZ1 or 50 metres of a well or borehole used for any purpose, other than abstraction from that well or borehole for the sole purpose of supplying water to the activity specified in table S1.1 and wells or boreholes used solely for the purpose of extracting hydrocarbons
- 2.3.4 The operator shall:
- (a) review the waste management plan at least every five years from the date of initial approval and submit any written revisions to the Environment Agency for approval.
 - (a) implement the approved waste management plan from the date of approval, unless otherwise agreed in writing by the Environment Agency

- 2.3.5 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.
- 2.3.6 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 table S3.1 and S3.2 shall not be exceeded.
- 3.1.3 Subject to any other condition of this permit, 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.

3.2.4 The Operator shall take appropriate measures:

- (a) to prevent the input of hazardous substances to groundwater; and
- (b) where a non-hazardous pollutant is not controlled by an emission limit, to limit the input of such non-hazardous pollutants to groundwater so as to ensure that such inputs do not cause pollution of groundwater.

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) surface water or groundwater specified in table S3.5;
- (c) process monitoring specified in table S3.6

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 continual), 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 The operator shall carry out:
- (a) regular calibration, at an appropriate frequency, of systems and equipment provided for carrying out any monitoring and measurements necessary to determine compliance with this permit; and
 - (b) regular checking, at an appropriate frequency, that such systems and equipment are serviceable and correctly used.
- 3.5.5 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.
- 3.5.6 If required by the Environment Agency, the operator shall:
- (a) take such samples and conduct such measurements, tests, surveys, analyses and calculations, including environmental measurements and assessments, at such times and using such methods and equipment as the Environment Agency may specify; and
 - (b) keep samples, provide samples, or dispatch samples for tests at a laboratory, as the Environment Agency specifies, and ensure that the samples or residues thereof are collected from the laboratory within three months of receiving written notification that testing and repackaging in accordance with the relevant legislation are complete.
- 3.5.7 On a monthly basis, or as agreed in writing with the Environment Agency; the Operator shall analyse the flare feed gas. The analysis shall include speciation and concentration of organic substances, carbon monoxide, sulphur containing compounds, halogen containing compounds and moisture. A report of the analysis shall be submitted to the Environment Agency within 28 days of completion of each analysis.
- 3.5.8 The Operator shall by calculation determine the emissions of the substances identified in table S3.1, based on the most recent feed gas composition analysis, feed gas flow rate and combustion efficiency of the flare.
- 3.5.9 The groundwater monitoring plan specified in Table S1.2, Schedule 1 shall be implemented unless otherwise agreed in writing with the Environment Agency.
- 3.5.10 Any revised groundwater monitoring plan should be implemented in place of the original in accordance with the Environment Agency's written approval unless otherwise agreed in writing.

3.6 Installation of monitoring boreholes

- 3.6.1 The Operator shall submit for approval to the Environment Agency details of the groundwater monitoring plan within 6 months of permit issue.
- 3.6.2 The monitoring boreholes shall be installed to depths, by methods and according to a design agreed in advance and in writing by the Environment Agency. The following details regarding the monitoring boreholes shall be provided to the Environment Agency within 1 month of installation:
- (a) casings/linings (length, diameter, material, type of grout or filter media and whether slotted or plain);
 - (b) depths and diameters of unlined sections;
 - (c) standing groundwater levels;
 - (d) details of strata encountered during drilling;
 - (e) reference levels in metres above ordnance datum;

- (f) a location plan at a suitable scale showing the boreholes in relation to the point of discharge;
- (g) national grid references of the borehole(s) in the form AB 12345 67890;
- (h) any other information obtained from the borehole(s) relevant to the interpretation of water sample analysis.

4 Information

4.1 Records

4.1.1 All records required to be made by schedules 3, 4 and 5 to 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 maintain convenient access, in either electronic or hard copy, to the records, plans and management system required to be maintained by this permit.

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 For the following activities referenced in schedule 1, table S1.1 (A1 to A7) 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; and
- (c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.

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

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

4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report

assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.3 Notifications

4.3.1 In the event:

- (a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—
 - (iii) inform the Environment Agency,
 - (iv) take the measures necessary to limit the environmental consequences of such an incident or accident, and
 - (v) take the measures necessary to prevent further possible incidents or accidents;
- (b) of a breach of any permit condition the operator must immediately—
 - (vi) inform the Environment Agency, and
 - (vii) 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 The information provided under condition 4.3.1(a)(i), or 4.3.1 (b)(i) where the information relates to the breach of a limit specified in the permit, shall be supported 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:

- (a) any change in the operator's name or address; and
- (b) any steps taken with a view to the dissolution of the operator.

In any other case:

- (a) the death of any of the named operators (where the operator consists of more than one named individual);
- (b) any change in the operator's name(s) or address(es); and
- (c) 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 For the following activities referenced in schedule 1, table S1.1 (A1-A5 and A7) 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 proposes to make an amendment to the approved waste management plan, which 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 implementing the amended waste management plan in place of the original; and
 - (b) the notification shall contain a description of the proposed amendment.

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 and WFD Annex I and II operations	Limits of specified activity and waste types
A1	S1.2 A(1)(e)(i): The loading, unloading, handling or storage of, or the physical, chemical or thermal treatment of crude oil.	Production of fluids extracted from the resource formation by pump, phase separation and storage of products (crude oil) and waste prior to onward transport.	<p>From receipt of production fluids at the wellhead at Rooks Nest and Coney Hill to the despatch of products (crude oil) and waste.</p> <p>Oil shall be stored in vessels which are of sufficient strength and structural integrity to ensure that it is unlikely to burst or leak in its ordinary use.</p> <p>Provisions shall be made to minimise the emissions of non methane volatile organic compounds (NMVOC) and methane from the oil storage tank vent.</p> <p>Any water, contaminated with crude oil, which is drained off from the vessel and is not being recycled must be collected for treatment before disposal.</p> <p>Any water collected in the secondary containment (bund) must be sampled and analysed before release to controlled water. If found to be contaminated with crude oil, it must be collected for treatment before disposal.</p> <p>Any road tanker loading systems must be fully contained and the delivery system shall be fitted with dry break couplings.</p> <p>During loading of road tankers, the road tanker shall be back vented to the bulk storage tank, or routed to a suitable vent treatment system.</p>
Directly Associated Activity			
A2	Storage of additional raw materials.	Raw materials directly associated with the production of crude oil.	From receipt of raw materials to the despatch for use.
A3	Treatment, abatement and utilisation of produced gas in water bath heater and electrical generator at Rook's Nest.	Collection, treatment and utilisation of gas in water bath heater and electrical generator.	All produced gas collection and handling equipment, including water bath heater and generator.
A4	Underground pipeline connecting Coney Hill to Rook's Nest.	Transport of production fluids by underground pipeline from Coney Hill to Rook's Nest Well Site.	Pipe manifold at Coney Hill to pipe manifold at Rook's Nest.

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity and WFD Annex I and II operations	Limits of specified activity and waste types
A5	Discharge of surface water at Rook's Nest to Gibbs brook (W3)	Collection and batched discharge of pooled site surface water from non process areas of the site at Rook's Nest	Sampled in accordance with table S3.2 and S3.5 prior to discharge to Gibbs Brook. The surface water shall be treated by oil interceptor prior to discharge via outlet W3
	Description of activities for waste operations	Limits of activities	
A6	The management of extractive waste from production activities, not involving a waste facility. The management of extractive waste generated by well workover.	Permitted waste types shall conform to the description in the approved waste management plan. The activities shall be limited to those described in the approved waste management plan referenced in Table S1.2 below. The storage of extractive waste is limited to temporary storage in secure containment as part of the collection and transportation of waste from the site. Well stimulation by hydraulic fracturing is not permitted. Flaring of waste gas from onshore oil and gas production activities shall be limited to less than 10 tonnes per day.	
	Description of activity for Groundwater	Limits of specified activity	
A7	Re-injection of produced water from extraction of Hydrocarbons and treated site surface water to ground via boreholes PW02 and PW03 at Rook's Nest and PW09 at Coney Hill.	Discharge of produced water from extraction of hydrocarbons and treated site surface water into boreholes PW02 (NGR TQ 36432 52621) and PW03 (NGR TQ 36445 52623) at Rook's Nest (as specified in table S3.3), and PW09 (NGR TQ 37512 52681) at Coney Hill subject to completion of pre-operational conditions (as specified in table S1.4). <ul style="list-style-type: none"> The re-injection boreholes shall not extend deeper than 1023 metres below ground level (mbgl) in PW02, 1087 mbgl in PW03 and 1742 mbgl in PW09. Un-perforated linings shall extend to a minimum depth of 1013 mbgl in PW02, 1074 and 1083 mbgl in PW03 and 1714 mbgl in PW09. The target formation for re-injection is the Corallian Sandstone Formation. The discharge shall only be made via perforations in the boreholes which are situated within the Corallian Sandstone Formation. The injection pressure shall not exceed the fracture pressure of the formation. The activity will be carried out in accordance with the documents specified in Table S1.2 and S1.3.	

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application	The response to section B2.1, excluding the section 9.2 of the response to B2.1.1; and the response to section B2.2, excluding the response to B2.2.50, in the Application.	30/08/2006
Response to request for information issued on 23/01/07	Response from the applicant to the request for further information. Reference Number: PGRX0064/NR/D5619	16/02/2007

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application and Response to Schedule 5 Notice dated 02/06/2017	The response to section C3 of the Application, and additional information provided in the Schedule 5 Notice response, and further clarification in response to the Schedule 5 Notice.	30/12/2016 and 23/08/2017 and 02/02/2018
Application and Response to Schedule 5 Notice dated 02/06/2017	Environmental Risk Appraisal, Palmers Wood v1 (updated as part of the Schedule 5 response)	02/02/2018
Application and Response to Schedule 5 Notice dated 02/06/2017	Appendix 4 Approved Waste Management Plan Rev 2 as amended in response to Schedule 5 Notice	23/03/2018
Application and Response to Schedule 5 Notice dated 02/06/2017	Appendix 9 Deminimus justification and supplementary information in response to Schedule 5 Notice	09/01/2017 and 23/08/2017 and 02/02/2018
Application and Response to Schedule 5 Notice dated 02/06/2017	Appendix 10 – Chemicals information - Materials safety data sheets	09/01/2017 and 23/08/2017 and 02/02/2018
Application and Response to Schedule 5 Notice dated 02/06/2017	Hydrogeological Risk Assessment v4, dated 22 June 2018	22/06/2018
Application and Response to Schedule 5 Notice dated 02/06/2017	Site condition report, version 1, June 2017	29/06/2017
Further information to support the HRA provided by emails dated 17/12/2018 and 10/01/2019	Further information in relation to the HRA provided by email	17/12/2018 and 10/01/2019
Application	Completed Gap Analysis Tool response, version 2 July 2017 Final	20/07/2017
Application	Palmers Wood Deviated Wells Map	01/08/2017
Secondary and tertiary containment plan as approved under IC1	All of document	Date of approval of IC1
Leak detection and repair plan as approved under IC2	All of document	Date of approval of IC2
Groundwater monitoring plan as approved under IC3	All of document	Date of approval of IC3
Gas management system improvement plan as approved under IC5	All of document	Date of approval of IC5
Vapour recovery plan as approved under IC7	All of document	Date of approval of IC7

Table S1.2 Operating techniques		
Description	Parts	Date Received
Site surface water management plan as approved under IC8	All of document	Date of approval of IC8
Baseline groundwater monitoring report as required under PO 02	All of document	Date of approval of PO 02

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC1 <i>Containment</i>	<p>The operator shall submit a written 'secondary and tertiary containment plan' and shall obtain the Environment Agency's written approval to it. The plan shall contain the results of a review conducted, by a competent person, in accordance with the methodology detailed within CIRIA C736 (2014), of the condition and extent of secondary and tertiary containment systems where all polluting liquids and solids are being stored, treated, and/or handled. This review should consider, but is not limited to, the storage vessels, separators, bath heaters, bunds, loading and unloading areas, transfer pipework/pumps, temporary storage areas, and liners underlying the site. The plan must contain dates for the implementation of individual improvement measures necessary for the secondary and tertiary containment systems to adhere to the standards detailed/referenced within CIRIA C736 (2014), or equivalent.</p> <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p>	30/10/2019
IC2 <i>Leak detection</i>	<p>The operator shall submit a written 'leak detection and repair plan', and associated procedures and shall obtain the Environment Agency's written approval to it. The plan will consider all activities listed in table S1.1. The plan will identify, measure and reduce emissions of volatile organic compounds and other substances to air, appropriate to their operations and in accordance with European standard EN15446 or an equivalent standard.</p> <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p>	30/07/2019
IC3 <i>Groundwater activities</i>	<p>The operator shall submit a written plan for groundwater monitoring during the operational and post decommissioning phases of the groundwater activities for each site and shall obtain the Environment Agency's written approval to it. The plan will be based on the hydrogeological risk assessment and conceptual site model including, but not limited to:</p> <ul style="list-style-type: none"> i) details of the proposed location; depth; and construction method of the groundwater monitoring boreholes ii) number of groundwater monitoring boreholes to be installed iii) details of the geological formation that monitoring boreholes in (i) are monitoring iv) groundwater sample collection procedures v) details of the proposed monitoring parameters and frequency vi) details of how the data collected will be reviewed and interpreted including setting and reviewing trigger levels vii) details for further investigation if erroneous results are observed <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p>	30/07/2019

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC4 <i>Management system</i>	<p>The operator shall review and update the written management system (referred to in condition 1.1.1) to ensure the procedures are in place to meet the requirements resulting from the variation of this permit. In particular the review should ensure that the following points are included in the management system:</p> <ul style="list-style-type: none"> i) The procedure for identifying bund fill levels, e.g. high level alarm on unmanned sites ii) The procedures for testing the impermeable membrane and subsequent remediation measures if required. iii) The procedure for notifying the Environment Agency on each occasion where natural gas is vented uncombusted to atmosphere for safety purposes. Notification to include, but not limited to: reasons for, duration of and quantity of gas vented. iv) The procedure for providing emergency flare capacity in the event that primary flare / gas management processes are unavailable / if venting likely to continue for more than 24 hours. 	30/04/2019
IC5 <i>Gas management</i>	<p>The operator shall submit a written gas management improvement plan and shall obtain the Environment Agency's written approval for it.</p> <p>The plan must contain detailed consideration of all available options for the beneficial utilisation of all of the available gas from your activities, including gas that is not already utilised, gas vented from storage vessels and gas vented during the loading and unloading of road vehicles where relevant.</p> <p>Where such utilisation is not feasible, your plan must consider in detail all available options, both combustion and non-combustion based (including but not necessarily limited to flaring, vapour recovery, scrubbing and adsorption), for the disposal or abatement / mitigation of your waste gas so as to minimise its environmental impacts as far as available techniques allow.</p> <p>The gas management improvement plan shall also refer to the review of emissions undertaken as a result of IC6. If emission limits were not being met, the plan shall including actions that will be taken to ensure that emission limits are met.</p> <p>The plan must contain dates for the implementation of the identified improvement measures.</p> <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p>	30/07/2020
IC6 <i>Air</i>	<p>The operator shall monitor point source emissions to air in accordance with table S3.1. The operator shall submit a review of emissions compared to the emission limits in table S3.1 to the Environment Agency and obtain the Environment Agency's written approval of the report.</p>	30/07/2019
IC7 <i>Vapour recovery</i>	<p>The operator shall submit a written plan for vapour capture and recovery from loading and unloading activities and shall obtain the Environment Agency's written approval to it.</p> <p>The plan must detail the installation of a vapour capture / recovery system during the loading and unloading of road vehicles. The plan must contain dates for the implementation of the identified improvement measures.</p> <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p>	30/07/2019

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC8 <i>Surface water</i>	<p>The operator shall submit a written 'site surface water management plan' and shall obtain the Environment Agency's written approval to it. The plan will be based on the understanding from the conceptual site model and environmental risk assessment where the risks to the water environment are clearly detailed. The plan shall include details of how rainwater is managed, collected, stored and treated where necessary prior to discharge or disposal. The plan shall contain dates for the implementation of any improvement measures necessary to ensure that there are no uncontrolled contaminated water discharges to the environment from the site.</p> <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p>	30/10/2019
IC9 <i>Site Condition Report</i>	<p>The operator shall undertake a review of the Site Condition Report (as provided in Table S1.2) to ensure Article 22 of the Industrial Emissions Directive is complied with. The review shall include at least the following:</p> <ul style="list-style-type: none"> i) consideration of oil storage areas including oil storage vessels, bunds, loading and unloading areas and other potential sources of contamination as shown in the site location plan ii) reference to any historical spillages, the chemicals involved and locations iii) baseline soil sample results and groundwater data 	30/01/2020
IC 10 <i>Soakaway abandonment</i>	<p>The operator shall produce a plan following the investigation of the soakaway at Coney Hill, including appropriate risk assessment and abandonment procedures and dates for this work, to prevent it being a potential pollution pathway to groundwater.</p> <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p>	30/07/2019

Table S1.4 Pre-operational measures for future development		
Reference	Operation	Pre-operational measures
PO 01	Addition of PW09 for re-injection of produced water for production support at Coney Hill	<p>The operator shall notify the Environment Agency at least 10 working days prior to commencing the groundwater activity A7 via borehole PW09 listed in table S1.1. The notification must:</p> <ul style="list-style-type: none"> i) confirm there have been no significant changes on site that would alter the impacts and techniques identified in the hydrogeological risk assessment, or equivalent document, and approved in writing by the Environment Agency for activity (A7) ii) confirm details of any borehole modifications required to facilitate the discharge to those approved by the requirements specified in permit Tables S1.1; S1.2 and S1.3, required to facilitate the activity (A7) iii) confirm, with suitable data, that there have been no changes to the well integrity of borehole PW09, approved by the hydrogeological risk assessment in table S1.2 and the requirements specified in tables S1.1 and S1.3; iv) demonstrate, with suitable data and assessment, that the outcome of parts ii and iii do not alter the agreed HRA or equivalent document specified in part i; v) confirm the results of three months baseline groundwater monitoring and surface water monitoring required by tables S1.2, S1.3 and S1.4, for those parameters listed in table S3.5, as a minimum; vi) confirm, with suitable data and assessment, any proposed changes to the groundwater and surface water monitoring programme specified in tables S1.2, S1.3 and S1.4 for the activity. <p>The activity A7 shall not commence until written approval from the Environment Agency has been obtained for PO 01 parts i. through to vi above.</p>
PO 02	Baseline groundwater monitoring	<p>Prior to the commencement of groundwater activity A7 via borehole PW09 listed in table S1.1, the operator shall submit a written plan for baseline groundwater and surface water monitoring and shall obtain the Environment Agency's written approval to it.</p> <p>The plan will be based on the hydrogeological risk assessment and conceptual site model including, but not limited to:</p> <ul style="list-style-type: none"> i) details of the proposed location; depth; and construction method of the groundwater monitoring boreholes ii) number of groundwater monitoring boreholes to be installed iii) details of the geological formation that monitoring boreholes in (i) are monitoring iv) groundwater sample collection procedures v) details of the proposed monitoring parameters and frequency vi) details of how the data collected will be reviewed and interpreted <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p>
PO 03	As built groundwater monitoring borehole details	<p>If not previously submitted under condition 3.6 of this permit; the operator must provide the information as requested in condition 3.6 at least 4 months before the commencement of the groundwater activity A7 via borehole PW09 in table S1.1.</p>

Schedule 2 – Waste types, raw materials and fuels

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

Non-extractive wastes are not accepted as part of the permitted activities and there are no restrictions on raw materials or fuels under this schedule.

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A1 [point A1 on Rook's Nest site plan in Schedule 7]	Gas flare	Oxides of nitrogen	-		Monthly by calculation	As approved in writing with the Environment Agency
		Carbon monoxide	-		Monthly by calculation	
		Total volatile organic compounds (VOCs)	-		Monthly by calculation	
		Methane	-		Monthly by calculation	
		Flare gas feed flow rate	<10 tonnes per day		Continuous	
		Temperature	> 800 deg C		Frequency and method to be agreed after completion of improvement condition IC5	
A2 [point A2 on Rook's Nest site plan in Schedule 7]	Storage tank vent stack	Gas vented	-	Month	Monthly	Calculation to determine the quantity of gas vented over the reference
		Hydrogen sulphide	5.7 mg / m ³	-	Monthly	As approved in writing with the Environment Agency
A3 [point A3 on Rook's Nest site plan in Schedule 7]	Gas fired bath heater (600kwth)	-	-		-	-

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Discharge source and discharge point ref. & location	Parameter	Limit (including unit)	Reference Period	Limit of effective range	Monitoring frequency	Compliance Statistic
A7: Discharge of produced water from oil and gas extraction and treated site surface water to ground (Corallian Sandstone Formation) via re-injection boreholes PW02 (W2) and PW03 (W1) at Rook's Nest and re-injection borehole PW09 (W5) at Coney Hill following approval of PO 01 - 03.	Maximum daily discharge volume	300 m ³ /day	Total daily volume	N/A	Continuous	Maximum
	Maximum rate of discharge	3.5 litres per second	Instantaneous (spot sample)	N/A	N/A	Maximum
	15-minute instantaneous or averaged flow	No limit set. Record as l/s	15 minute	N/A	C	N/A
A5: W3 - Discharge of site surface water on Rook's Nest site to Gibbs Brook	Maximum daily discharge volume	30m ³ /day	Total daily volume	N/A	N/A	Maximum
	Maximum rate of discharge	41.7 litres per second	Instantaneous (spot sample)	N/A	N/A	Maximum
	Visible oil or grease	No significant trace present so far as is reasonably practicable	Instantaneous (visual examination)	N/A	Per discharge	No significant trace
	Chloride	150 mg/l	Instantaneous (spot sample)	N/A	Per discharge	Maximum

Table S3.3 Discharge points			
Effluent name	Discharge Point	Discharge point NGR	Receiving water / environment
A7: Discharge of an admixture of Produced water and treated site surface water drainage from oil and gas extraction to re-injection borehole at Rook's Nest	W1 (Well PW03)	In a south easterly direction between TQ 36445 52623 (well surface) and TQ 36003 52136 (Reservoir interface)	Corallian Sandstone Formation via injection borehole
A7: Discharge of an admixture of Produced water and treated site surface water drainage from oil and gas extraction to re-injection borehole at Rook's Nest	W2 (Well PW02)	In a north easterly direction between TQ 36432 52621 (well surface) and TQ 36720 53239 (Reservoir interface)	Corallian Sandstone Formation via injection borehole
A7: Discharge of an admixture of Produced water and treated site surface water drainage from oil and gas extraction to re-injection borehole at Coney Hill	W5 (Well PW09)	In an easterly direction between TQ 37512 52681 (well surface) and TQ 38996 52809 (Reservoir interface)	Corallian Sandstone Formation via injection borehole
A5: Discharge of treated site surface water on Rook's Nest site to Gibbs Brook	W3	TQ 36566 52442	Gibbs Brook

Table S3.4 Monitoring points			
Effluents and discharge points	Monitoring type	Monitoring point NGR	Monitoring point reference
A5: Discharge of site surface water on Rook's Nest site to Gibbs Brook	Effluent monitoring	TQ 36566 52442	W3
A7: Discharge of an admixture of produced water from oil and or gas extraction and treated site surface water drainage to re-injection boreholes	Flow monitoring	PW03 TQ 36445 52623 PW02 TQ 36432 52621 PW09 TQ 37512 52681	Flow monitoring point

Table S3.5 Surface water or groundwater monitoring requirements				
Location or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Groundwater monitoring locations as specified in Groundwater monitoring plan in Table S1.2 following approval of IC3 in Table S1.3	As specified in Groundwater monitoring plan in Table S1.2 following approval of IC3 in Table S1.3	As specified in Groundwater monitoring plan in Table S1.2 following approval of IC3 in Table S1.3	BS ISO 5667-11:2009 and condition 3.5.3	Three borehole volumes must be purged prior to sampling. Samples must be filtered samples. In accordance with Groundwater monitoring plan In Table S1.2
Surface water monitoring locations as specified in Table S1.2 following approval of IC8 in Table S1.3	As specified in site surface water monitoring plan in Table S1.2 following approval of IC8 in Table S1.3	As specified in site surface water monitoring plan in Table S1.2 following approval of IC8 in Table S1.3	As specified in condition 3.5.3	In accordance with site surface water monitoring plan in Table S1.2

Table S3.6 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Gas to oil ratio of production from the installation	Gas to oil ratio	Monthly	As agreed in writing with the Environment Agency	
W1, W2 and W5 following approval of PO 01	Well integrity monitoring summary report	Annually	In accordance with HRA as referenced in Table S1.2	
W1, W2 (and W5 following approval of PO 01)	Concentration and volume of all process chemicals added to produced water prior to reinjection as defined in the Hydrogeological Risk Assessment in table S1.2.	Monthly	N/A	

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.	A1, A2, A3 (Flare, storage tank vent and bath heater)	Every 6 months	1 January, 1 July
Process chemicals in re-injected produced water Parameters as required by condition 3.5.1 and listed in Table S3.6	W1, W2, (W5 following completion of PO 01)	Every 6 months	1 January, 1 July
Groundwater and surface water monitoring as listed in Table S3.5	As Table S3.5	Every 6 months	1 January, 1 July
Emissions to groundwater (produced water reinjection: total daily volume and rate of discharge) as required by condition 3.5.1 and listed in Table S3.2	W1, W2, (W5 following completion of PO 01)	Every 6 months	1 January, 1 July
Emissions to water Parameters as required by condition 3.5.1 and listed in Table S3.2	W3	Every 6 months	1 January, 1 July
Flare Temperature Gas feed rate	Gas flare	Every 6 months	1 January, 1 July

Table S4.2: Annual production/treatment	
Parameter	Units
Methane Flared	Standard cubic feet
Crude Oil Production	tonnes
Average Water Cut	% production
Average Gas to Oil Ratio	scf / bbl

Table S4.3 Performance parameters		
Parameter	Frequency of assessment	Units
Crude Oil Production	Annually	tonnes
Average Water Cut	Annually	% production
Average Gas to Oil Ratio	Annually	scf / bbl

Table S4.4 Reporting forms		
Media/parameter	Reporting format	Date of form
Air	Form air 1 or other form as agreed in writing by the Environment Agency	DD/MM/YY
Water and Land	Form water 1 or other form as agreed in writing by the Environment Agency	DD/MM/YY
Process Chemicals	Form process chemicals 1 or other form as agreed in writing by the Environment Agency	DD/MM/YY
Produced water reinjection: Total daily volume	WISKI electronic format specified by the Environment Agency or some other format agreed in writing by the Environment Agency	DD/MM/YY
Produced water reinjection: 15-minute flow	WISKI electronic format specified by the Environment Agency or some other format agreed in writing by the Environment Agency	DD/MM/YY

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/YP3237YS
Name of operator	IGas Energy Production Limited
Location of Facility	Palmers Wood Oilfield
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.

“approved waste management plan” means a plan of the type described in Article 5(1) of Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries and amending Directive 2004/35/EC, approved as part of the grant or variation of an environmental permit and as revised from time to time.

“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.

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

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

“Competent Authority” means, in relation to –

- (a) London, the London Fire and Emergency Planning Authority;
- (b) an area where there is a fire and civil defence authority, that authority;
- (c) the Isles of Scilly, the Council of the Isles of Scilly;
- (d) an area in the rest of England, the county council for that area, or where there is no county council for that area, the district council for that area;

“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.

“emissions to land” includes emissions to groundwater.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations 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.

“extractive waste” means waste resulting from the prospecting, extraction, treatment and storage of mineral resources and the working of quarries, excluding waste which does not directly result from these operations.

“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

“inert waste” means waste that does not undergo any significant physical, chemical or biological transformations. Inert waste will not dissolve burn or otherwise physically or chemically react, biodegrade or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm human health. The total leachability and pollutant content of the waste and the ecotoxicity of the leachate must be insignificant, and in particular not endanger the quality of surface water and/or groundwater. All of the criteria listed in Article 1 of Commission Decision 2009/359 must be fulfilled.

“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.

“mbgl” means metres below ground level

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

“mining waste facility” means a waste facility as defined in Article 3(15) of Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries and amending Directive 2004/35/EC, where a mining waste operation is carried out.

“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.

“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.

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

“year” means calendar year ending 31 December.

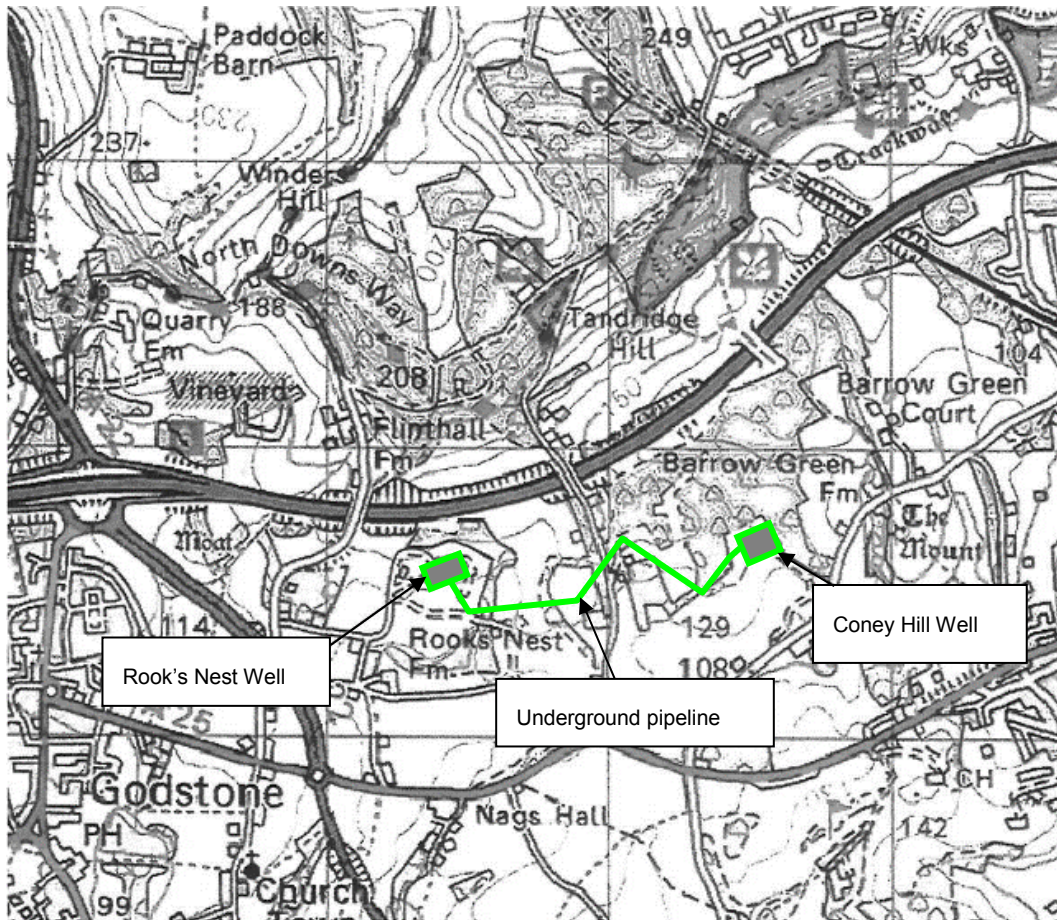
Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

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

- in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 KPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or
- in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

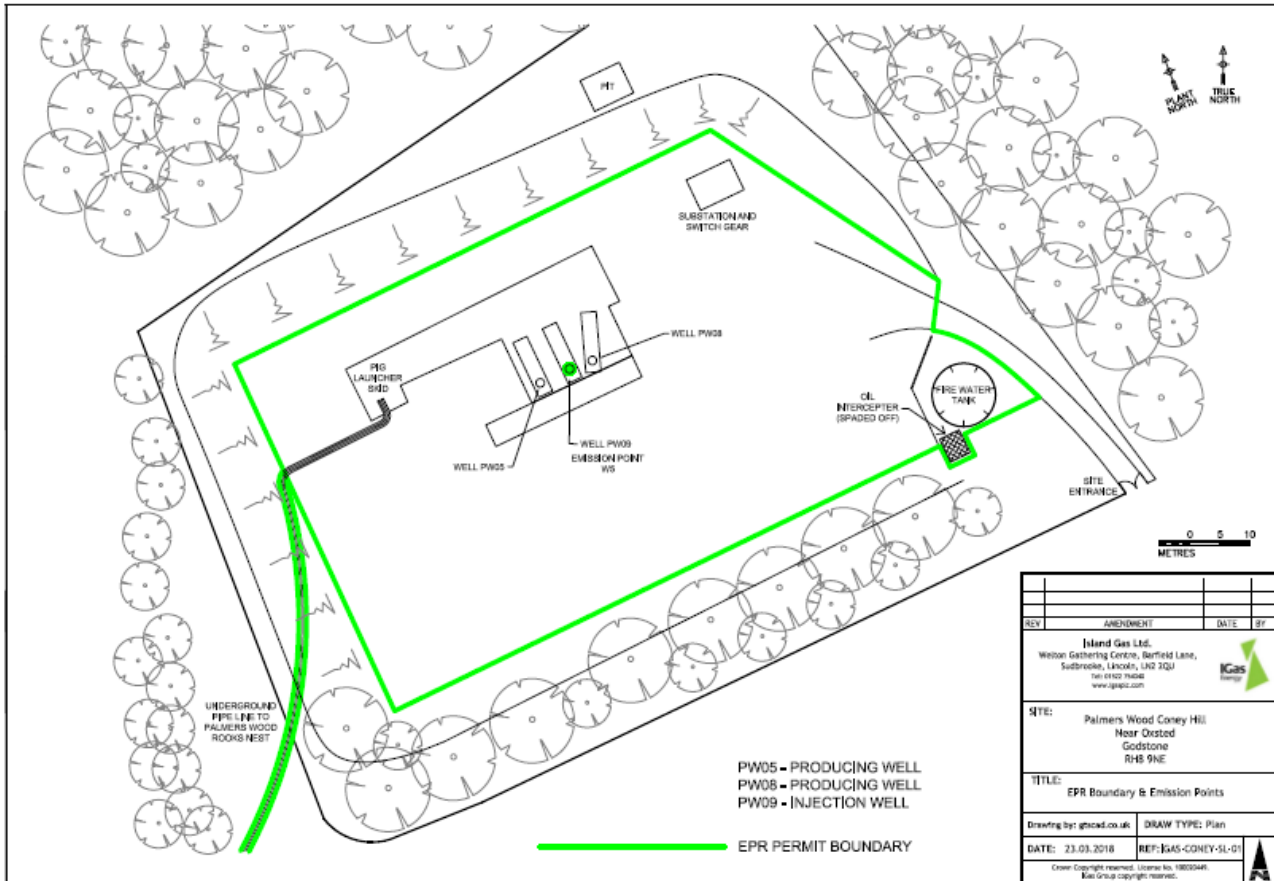
Schedule 7 – Site plan

Site plan 1 : Location of Rook's Nest and Coney Hill wellsites

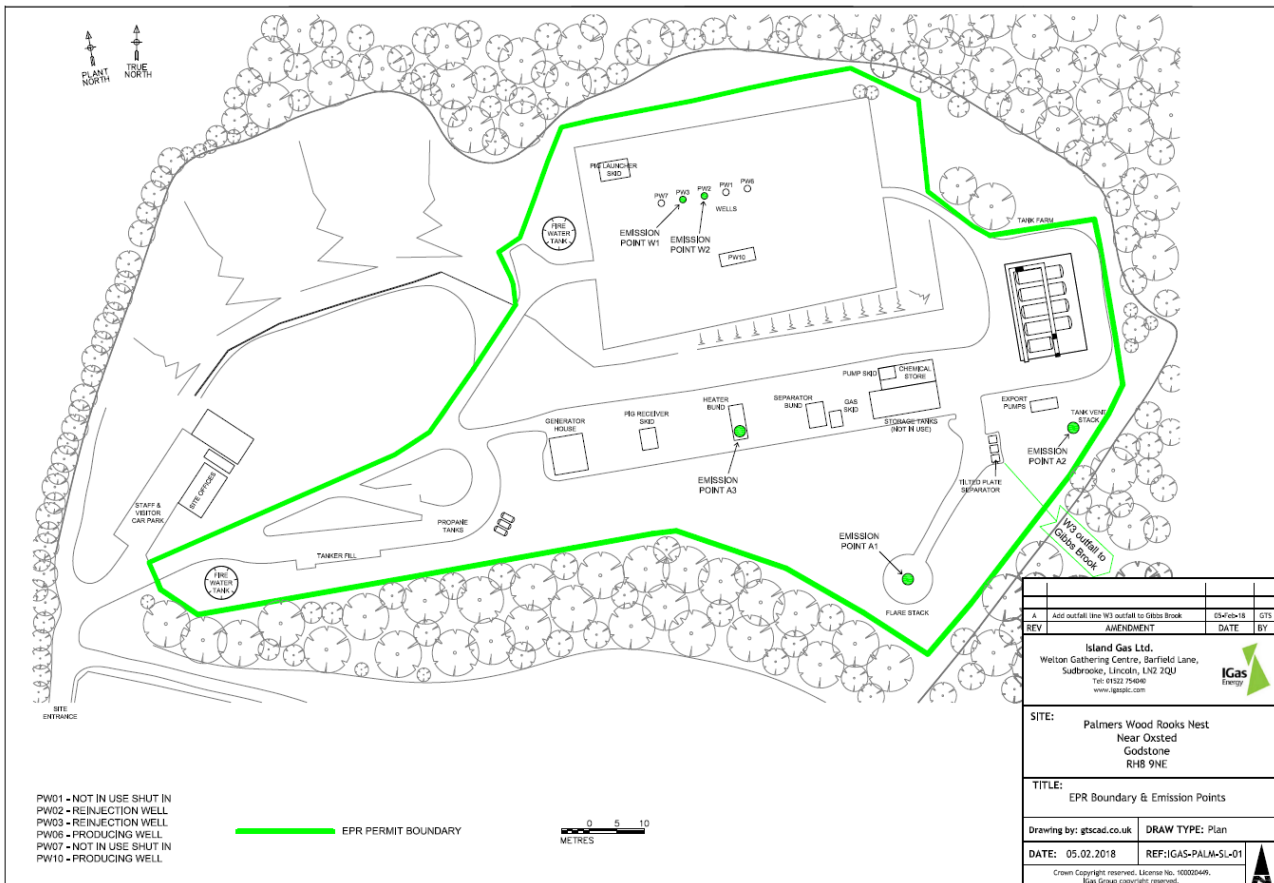


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Site Plan 2 : Layout Plan for Coney Hill



Site plan 3 : Layout Plan for Rook's Nest



END OF PERMIT

Permit number
EPR/YP3237YS - Palmers Wood Oilfield

Permit Number: EPR/YP3237YS

Operator: IGas Energy Production Limited

Facility: Palmers Wood Oilfield

Form Number: Air1 / dd/mm/yyyy

Reporting of emissions to air for the period from DD/MM/YYYY to DD/MM/YYYY

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result ^[1]	Test Method ^[2]	Sample Date and Times ^[3]	Uncertainty ^[4]

1. The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum – maximum' measured values.
2. Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with the Environment Agency is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.
3. For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements the percentage of the process operating time covered by the result is given.
4. The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

Signed Date.....

(Authorised to sign as representative of Operator

Permit Number: EPR/YP3237YS

Operator: IGas Energy Production Limited

Facility: Palmers Wood Oilfield

Form Number: Water2 dd/mm/yyyy

Reporting of emissions to water (other than to sewer) and land for the period from DD/MM/YYYY to DD/MM/YYYY

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result ^[1]	Test Method ^[2]	Sample Date and Times ^[3]	Uncertainty ^[4]

- [1] The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum – maximum' measured values.
- [2] Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with the Environment Agency is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.
- [3] For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements the percentage of the process operating time covered by the result is given. The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

Signed

Date.....

Permit Number:

EPR/YP3237YS

Operator:

IGas Energy Production Limited

Facility:

Palmers Wood Oilfield

Form Number:

Performance1 / DD/MM/YY

Reporting of process chemicals for the period DD/MM/YYYY to DD/MM/YYYY

Parameter	Units
Concentration and volume of all process chemicals added to produced water prior to reinjection as defined in the Hydrogeological Risk Assessment in table S1.2.	

Operator's comments:

Signed

Date.....

(Authorised to sign as representative of Operator)