

Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Humbly Grove Energy Limited

Humbly Grove Oilfield

Weston Common

The Avenue

Lasham

Alton

Hampshire

GU34 5SY

Variation application number

EPR/TP3638CT/V002

Permit number

EPR/TP3638CT

Humbly Grove Oilfield

Permit number EPR/TP3638CT

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
2. Installation Activities, refining gas over 1000 tonnes per year under schedule 1.2 Part A(1)(a) This has been carried over from the current permit.
3. Installation Activities, burning fuel in an appliance remains a schedule 1.1 Part A(1) (a) activity for burning any fuel in an appliance over 50MW thermal input, as the gas turbines and heaters at the Gathering Station are aggregated at more than 50MW thermal input, in table 1 below.
4. Installation Activities, the flare (high and low pressure system) has been changed to a schedule 5.1 Part A(1)(a) activity for incineration of hazardous waste above 10 tonnes per day, as it includes disposal of natural gas, in addition to emergency and maintenance usage. The flare activities on site are unchanged, but its regulation has been aligned with the Environmental Permitting Regulations and our sector guidance.
5. A Mining Waste Operation, involving a Mining Waste Facility 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 from well maintenance and abandonment. The permit is being varied to include activities specified by the approved Waste Management Plan. This includes addition of a non-hazardous mining waste facility for temporary storage of produced water on site prior to offsite disposal only. This is a contingency arrangement as the produced water is typically used onsite for reinjection for production support, which does not constitute a mining waste facility. The activities generating extractive wastes include: well maintenance, well workovers and abandonment, and venting of gas from storage tanks and combustion of gas in the ground flare. Routine well maintenance includes dewaxing and descaling of tubing. Non routine maintenance includes workovers, which involve kill fluid, corrosion inhibitor, biocide and oxygen scavenger, and removal of tubing for inspection. These are not new activities, and were previously covered by the operators operating techniques in their existing permit.
6. Groundwater activities, as defined by the Groundwater Directive and Schedule 22 of the Environmental Permitting (England and Wales) Regulations 2016 as amended, for reinjection of produced water for production support, and for injection of gas into the Great Oolite and Rhaetic Formation for temporary storage, and for discharges of site surface drainage to soakaway.

There are no other changes to the permit. The original permit was issued for:

The installation comprises of two technically linked activities, an oil gathering site and gas storage facility at Weston Common and three outlying oil well sites (Humbly Grove Well Sites A, C and X). Well site C was abandoned in 2017 and production has ceased, but the connecting pipeline and site soakaways are still in place. The well sites are connected to the Gathering Site by underground pipelines.

Well site A is located in Humbly Grove Copse, on the outskirts of Humbly Grove Village. Well site X is located south of the village of Blounce, just off the B3349 on the edge of a small wooded area at the junction of the B3349 and an access track to well site A.

The Gathering Site receives crude oil from the well sites by underground pipeline and the oil is then stabilized by removing water and gas and then pumped by pipeline to a third party owned rail terminal at Holybourne for delivery to customers. The Gathering Site where the main processing takes place, comprises the following:

- Crude oil receipt;
- Pipelines connecting the Gas and Oil Plant to Well Sites A, C and X;
- Tanker loading and unloading (crude oil);
- Tanker loading and unloading (produced water);
- Crude oil stabilisation (three phase separation);
- Crude oil dehydration (electrostatic coalescer);
- Crude oil storage (1 tank with 79.55 tonne/ 120m³ capacity);
- Produced water handling and storage;
- Energy generation through three open cycle gas turbines (15.49 MWth input each); and
- Enclosed ground flare (High pressure and low pressure systems linked to separators for emergency and disposal).

The Gas Storage facility consists of a gas plant at Weston Common, with the use of a local Well site (Well site A) for injection and withdrawal of the storage gas via wells into the Great Oolite and Rhaetic Formations. Gas is taken from the National Transmission System (NTS) and connected via a 24" 27 km pipeline to the gas plant, with a 2km 20" pipeline connecting the Gas Plant to Well site A. Fluids produced by the facility are handled and treated at the Oil Gathering site. The gas plant comprises the following:

- Gas compression for import/export of gas from/to the NTS;
- Hydrogen Sulphide (H₂S) absorber for export to the NTS;
- Three adsorber towers for gas dehydration and dewpoint control for export to the NTS;
- One regeneration gas heater;
- One regeneration gas cooler;
- One regeneration gas/liquid separator;
- One regeneration liquid holding vessel;
- Fines filters; and
- Energy generation through one open cycle gas turbines.

The main atmospheric emissions from the installation are combustion gases from process heaters, ground flare and from gas turbines used to generate electrical power for the site. There is minimal material usage on the site and no process wastewater discharge to either sewer or controlled water, though rainwater run-off is discharged to soakaways. The produced water is reinjected, with condensate comingled with the crude oil for export.

Table 1 – wellsite summary

Site Name / Reference	Site Location (Grid Ref)	Description of process and activities	Emissions
Gathering Site (including underground gas storage facility)	SU 69215 44575	3 thermal input Gas turbines (3 x 15.49 MWth) High pressure oil heater (1.25MWth) Regeneration gas heater (8.32MWth) (aggregated at 56.04 MWth in total) High pressure and low pressure emergency and disposal ground flare Crude oil stabilisation (three phase separation) and dehydration (electrostatic coalescer) Crude oil and produced water storage tanks Diesel powered emergency generator Gas refining Storage of gas underground in Great Oolite and Rhaetic Formations as groundwater activities	Oxides of Nitrogen, Carbon Monoxide, Volatile Organic Compounds, Methane Hydrogen Sulphide Site rain water run off to ground via soakaways
Well Site A	SU 70553 45290	Primary purpose is gas storage Injection of natural gas for underground storage: 4 wells into Great Oolite Formation (well A8, A9, A10 and A11) (well A5 observation well only) 2 wells into Rhaetic Formation (well A13 and A15) (well A1 observation well only) Flow inhibitor, scale inhibitor, H2S scavenger, and anti-foam injection	Natural gas injection limits: Maximum daily discharge volume and Maximum rate of discharge Site rain water run off to ground via soakaways
Well Site C	SU 69610 44871	Production ceased in 2017. 9 wellheads, all decommissioned. Pipeline to wellsite C and soakaways in place.	None but IC10 applies
Well Site X	SU 71151 44830	3 oil production wells 2 produced water injection wells (X2 and X3) via booster pump and plus one oil production well (X4) which can be used on standby to reinject produced water subject to pre operational condition PO 01 H2S scavenger injection and scale inhibitor. Scale inhibitor and anti-foam injection	Produced water reinjection limits: Maximum daily discharge volume and Maximum rate of discharge Site rain water run off to ground via soakaways

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 NP3332LA	Duly made 30/08/2006	
Permit determined	28/06/2007	
Application EPR/TP3638CT/T001 (full transfer of permit EPR/NP3332LA)	Duly made 03/04/2012	Application to transfer the permit in full to Humbly Grove Energy Limited.
Transfer determined EPR/TP3638CT	27/04/2012	Full transfer of permit complete
Application EPR/TP3638CT/V002 (variation and consolidation)	Duly made 25/10/2017	Application to vary to add a mining waste operation and update the permit to modern conditions.

Status log of the permit		
Description	Date	Comments
Schedule 5 notice responses received for variation EPR/TP3638CT/V002	06/06/2018 14/08/2018 07/02/2019 04/12/2019 06/01/2020 15/04/2020 27/05/2020	Response to schedule 5 notices – additional information received
Variation determined EPR/TP3638CT/V002 [Billing references: PAS P3339YZ EAWML 404267]	12/06/2020	Varied and consolidated permit issued in modern condition format.

Superseded or Partially Superseded/Authorisations/Consents relating to this installation			
Operator	Permit number	Date of issue	Fully or Partially Superseded
Star Energy UK Onshore Ltd	IPC Authorisation AF5336	29/10/92	Fully
Star Energy UK Onshore Ltd	Consent to Discharge to Surface Water CQ/C/AP/S/WR 1229	29/12/04	Fully

Other permits relating to this installation		
Operator	Permit number	Date of issue
Humbly Grove Energy Limited	Radioactive substances (Standard Rules) permit SR2014 No 4 for NORM wastes from oil and gas production. EPR/YB3194DQ	12/06/2020

End of introductory note.

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2016

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

Permit number

EPR/TP3638CT

Issued to

Humbly Grove Energy Limited (“the operator”),

whose registered office is

Weston Common

The Avenue

Lasham

Alton

Hampshire

GU34 5SY

company registration number 04689011

to operate an installation and a mining waste operation with a non-hazardous extractive waste facility and groundwater activities at

Humbly Grove Oilfield

Weston Common

The Avenue

Lasham

Alton

Hampshire

GU34 5SY

Gathering Site (including underground gas storage facility) (NGR- SU 69215 44575)

Wellsite A (NGR- SU 70553 45290)

Wellsite X (NGR- SU 71151 44830)

Wellsite C (NGR- SU 69610 44871)

to the extent set out in the schedules.

The notice shall take effect from 12/06/2020

Name	Date
Regulated Industries Team Leader	12/06/2020

Authorised on behalf of the Environment Agency.

Schedule 1

All conditions have been varied by the consolidated permit as a result of an Environment Agency initiated variation, 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/TP3638CT

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/TP3638CT/V002 authorising,

Humbly Grove Energy Limited (“the operator”),

whose registered office is

Weston Common

The Avenue

Lasham

Alton

Hampshire

GU34 5SY

company registration number 04689011

to operate an installation and a mining waste operation with a non-hazardous extractive waste facility and groundwater activities at

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Gathering Site (including underground gas storage facility) (NGR- SU 69215 44575)

Wellsite A (NGR- SU 70553 45290)

Wellsite X (NGR- SU 71151 44830)

Wellsite C (NGR- SU 69610 44871)

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

Name	Date
Regulated Industries Team Leader	12/06/2020

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

- 1.1.1 The operator shall manage and operate the activities:
- (a) in accordance with a written management system that identifies and minimises risks of pollution, 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.
- 1.1.4 The operator shall not start the closure of the mining waste facility unless agreed in writing by the Environment Agency.

1.2 Energy efficiency

- 1.2.1 For the following activities referenced in schedule 1, table S1.1 (AR1 to AR4) 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 (AR1 to AR4) The operator shall:
- (a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;
 - (b) maintain records of raw materials and water used in the activities;
 - (c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and
 - (d) take any further appropriate measures identified by a review.

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

- 1.4.1 The operator shall take appropriate measures to ensure that:
- (a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities;
 - (b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and

(c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

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

2.2 The site

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

2.2.2 The groundwater activities (AR8- AR15) 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 discharges from groundwater activities (AR8-AR11) shall be made from the wellbores within the Great Oolite Formation and Rhaetic 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 linings specified 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 SPZ 1 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 purpose of extracting hydrocarbons

2.3.3 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.
 - (b) implement the approved waste management plan from the date of approval, unless otherwise agreed in writing by the Environment Agency
- 2.3.4 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.5 The 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.
- 2.3.7 Hazardous waste shall not be mixed, either with a different category of hazardous waste or with other waste, substances or materials, unless it is authorised by schedule 1 table S1.1 and appropriate measures are taken.

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 Total annual emissions from the emission points set out in schedule 3 tables S3.1, S3.2 and S3.3 of a substance listed in schedule 3 table S3.4 shall not exceed the relevant limit in table S3.4.
- 3.1.4 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) 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, or otherwise agreed in writing with the Environment Agency. 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.
- 3.6.3 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 (AR1 to AR15) 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—
 - (i) inform the Environment Agency,
 - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and
 - (iii) take the measures necessary to prevent further possible incidents or accidents;
- (b) of a breach of any permit condition the operator must immediately—
 - (i) inform the Environment Agency, and
 - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
- (c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

4.3.2 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 (AR1 to AR6 and AR8-AR15) 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
AR1	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 Humbly Grove Oilfield (which includes the Gathering site (Oil and Gas plant) and underground gas storage facility, and wellsites A and X as shown in Schedule 7) 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 storage vessel and is not being recycled for reinjection 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>
AR2	S1.2 A(1)(a): Refining gas where this is likely to involve the use of 1,000 or more tonnes of gas in any 12-month period.	Refining gas where this is likely to involve the use of 1,000 or more tonnes of gas in any 12-month period.	From the gas reception emergency shut-off isolation valve, the gas handling and conditioning systems through to the well-head at the Gathering Site (Gas Plant) and wellsite A as shown in Schedule 7.

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
AR3	S1.1 A(1)(a): Burning any fuel in an appliance with a net rated thermal input of 50 or more megawatts.	Supply of fuel gas to three open cycle gas turbines (3 x 15.49 MWth) High pressure oil heater (1.25MWth) at Gathering Site (Oil plant) Regeneration gas heater (8.32MWth) at Gathering Site (Gas plant) (Aggregated thermal input of 56.04 MWth)	From receipt of fuel gas and produced gas to the export of electrical power (and waste).
AR4	S5.1 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.	Flaring of waste gas from onshore oil and gas production activities using a ground flare (low pressure and high pressure)	From the receipt of waste gas into the ground flare to the despatch of waste combustion gases.
Directly Associated Activity			
AR5	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.
AR6	Pipelines connecting Wellsite A, Wellsite C and Wellsite X with the Gathering Site).	Transport of production fluids between all sites.	From pipe manifold on site exporting production fluids to pipe manifold on site importing production fluids.
Description of activities for waste operations		Limits of activities	
AR7	The management of extractive waste from production activities, involving a non-hazardous mining waste facility (for storage of produced water prior to offsite disposal) The management of extractive waste generated by well workover. The management of extractive waste generated by well decommissioning.	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, excluding extractive wastes stored in the non-hazardous mining waste facility, is limited to temporary storage in secure containment as part of the collection and transportation of waste from the site. The extent of the non-hazardous mining waste facility for produced water storage prior to off-site disposal only, is limited to the produced water tank as defined in the Gathering Site (Oil plant) figure 3 of schedule 7 of this permit. Well stimulation by hydraulic fracturing is not permitted.	

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
	Description of activity for Groundwater	Limits of specified activity	
AR8	Discharge of trade effluent: Natural gas from the National Transmission System (NTS) for injection into the Great Oolite Formation for storage purposes only via four boreholes at Wellsite A.	<p>The discharge of natural gas to existing injection boreholes A8z, A9z, A10 and A11 at Wellsite A (as specified in Table S3.3)</p> <ul style="list-style-type: none"> ○ The injection boreholes A8z, A9z, A10 and A11 shall not extend deeper than 1162 metres below ground level; ○ Un-perforated linings shall extend to a minimum depth of 1141 metres below ground level. ○ The target formation for the injection of natural gas shall be the Great Oolite Formation ○ The discharge shall only be made via perforations in the boreholes which are situated within the Great Oolite Formation ○ The injection of natural gas shall be for storage purposes only <p>The activity will be carried out in accordance with the document specified in Table S1.2.and S1.3</p>	
AR9	Discharge of trade effluent: Natural gas from the National Transmission System (NTS) for injection into the Rhaetic Formation for storage purposes only via two boreholes at Wellsite A.	<p>The discharge of natural gas to existing injection boreholes A13 and A15 at Wellsite A (as specified in Table S3.3)</p> <ul style="list-style-type: none"> ○ The injection boreholes A13 and A15 shall not extend deeper than 1430 metres below ground level; ○ Un-perforated linings shall extend to a minimum depth of 1417 metres below ground level. ○ The target formation for the injection of natural gas shall be the Rhaetic Formation ○ The discharge shall only be made via perforations in the boreholes which are situated within the Rhaetic Formation ○ The injection of natural gas shall be for storage purposes only <p>The activity will be carried out in accordance with the document specified in Table S1.2.and S1.3</p>	
AR10	Re-injection of produced water from extraction of hydrocarbons to ground via boreholes X2 and X3 at Wellsite X	<p>The discharge of produced water from extraction of hydrocarbons into existing boreholes X2 and X3 at NGR SU 71143 44808 and SU 71141 44790</p> <ul style="list-style-type: none"> • Re-injection boreholes X2 and X3 shall not extend deeper than 1286 metres below ground level (mbgl) and 1263 mbgl respectively • Unperforated linings shall extend to minimum depths of 1209 and 1149 mbgl respectively • The target formation for the re-injection is the Great Oolite Formation. • The discharge shall only be made via perforations in the boreholes which are situated in the Great Oolite Formation • The injection pressure shall not exceed the fracture pressure of the formation <p>The activity will be carried out in accordance with the documents specified in Table S1.2. and S1.3</p>	

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
AR11	<p>*Re-injection of produced water from extraction of hydrocarbons to ground via borehole X4 at Wellsite X</p> <p>*Subject to pre-operational conditions PO 01 to PO 03 in Table S1.4</p>	<p>The discharge of produced water from extraction of hydrocarbons into modified production borehole X4 at NGR SU 71141 44795 at Wellsite X (as specified in table S3.3).</p> <ul style="list-style-type: none"> • Re-injection borehole X4 shall not extend deeper than 1524 mbgl • Unperforated linings shall extend to a minimum depth of 1170 mbgl • The target formation for the re-injection is the Great Oolite Formation. • The discharge shall only be made via perforations in the borehole which are situated in the Great Oolite Formation • The injection pressure shall not exceed the fracture pressure of the formation <p>The activity will be carried out in accordance with the documents specified in Table S1.2. and S1.3</p>	
AR12	Discharge of treated site surface water to ground via 3 soakaways at Wellsite A (emission points W12-W14)	Discharge of site surface water through oil interceptors to ground via an infiltration system as specified in table S3.3. The discharge shall be monitored as specified in table S3.3	
AR13	Discharge of treated site surface water to ground via 3 soakaways at Wellsite X (emission points W15-W17)	Discharge of site surface water through oil interceptors to ground via an infiltration system as specified in table S3.3. The discharge shall be monitored as specified in table S3.3	
AR14	Discharge of treated site surface water to ground via 1 soakaway at Oil Plant (emission point W18)	Discharge of site surface water through an oil interceptor to ground via an infiltration system as specified in table S3.3. The discharge shall be monitored as specified in table S3.3	
AR15	Discharge of treated site surface water to ground via 2 soakaways at Gas Plant (emission points W19-W20)	Discharge of site surface water through an oil interceptor to ground via an infiltration system as specified in table S3.3. The discharge shall be monitored as specified in table S3.3	

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application	The response to section 2.1 of the Application.	30/08/2006
Application	The response to section C3 of the Application, and additional supporting information.	14/07/2017 Duly Made 25/10/2017
Application	Gap Analysis Response	14/07/2017
Response to Schedule 5 Notice	Schedule 5 response document 06 June 2018 to questions in Schedule 5 Notice	06/06/2018
Response to Schedule 5 Notice	Schedule 5 Response, 10th August 2018	14/08/2018
Response to Schedule 5 Notice	Schedule 5 Response, 28 th September 2018	07/02/2019

Response to draft permit	HGEL Draft Environmental Permit Feedback Rev2	22/10/2019
Application	Appendix 1 Site Condition Report, 20 th September 2018	07/02/2019
Application	Appendix 2: Hydrogeological Risk Assessment 6 th September 2018	07/02/2019
Response to Schedule 5 Notice	Waste Management Plan, dated 1 st April 2020	15/04/2020
Application	Flare Technical and Operations report, 13 July 2017	14/07/2017
Response to draft permit questions	All of document	22/10/2019
Secondary and tertiary containment plan as approved under IC1	All of document	Date of approval of IC1
Groundwater monitoring plan as approved under IC2	All of document	Date of approval of IC2
Leak detection and repair plan as approved under IC3	All of document	Date of approval of IC3
Gas management system improvement plan as approved under IC4	All of document	Date of approval of IC4
Vapour recovery plan as approved under IC6	All of document	Date of approval of IC6
Site surface water Management Plan Report as approved under IC8	All of document	Date of approval of IC8
Site Condition Report as approved under IC9	All of document	Date of approval of IC9
Wellsite C decommissioning plan as approved under IC10	All of document	Date of approval of IC10
MCERTS Monitoring Plan as approved under IC11	All of document	Date of approval of IC11
Any additional information and data submitted in relation to PO 01-03 for prior approval for reinjection in X4 at Wellsite X	All of document	Date of approval of PO 01-03

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>	12/03/2021
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>	12/12/2020
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>	12/12/2020
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 point(s) is / 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 monitoring procedures and testing in place to confirm the integrity of the re-injection well(s) for the lifetime of those wells, monitoring frequency, 	12/09/2020

	<p>remediation measures (and reporting procedures) should the integrity monitoring results indicate that a well integrity failure has potentially occurred.</p> <p>(iii) The procedure for notifying the Environment Agency on each occasion where natural gas is vented un-combusted to atmosphere for safety purposes. Notification to include, but not limited to: reasons for, duration of and quantity of gas vented.</p> <p>(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.</p>	
<p>IC5 <i>Gas Management</i></p>	<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>	12/06/2021
<p>IC6 <i>Air</i></p>	<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>	12/12/2021
<p>IC7 <i>Vapour recovery</i></p>	<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>	12/12/2021
<p>IC8 <i>Surface water</i></p>	<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>	12/03/2021

	The plan shall be implemented in accordance with the Environment Agency's written approval.	
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 	12/06/2021
IC10 Wellsite C decommissioning	<p>The operator shall produce a plan following the investigation of Wellsite C including appropriate risk assessment and full abandonment procedures and dates for this work, to prevent any existing site infrastructure including decommissioned wells, pipelines and soakaways being a potential pollution pathway to groundwater.</p> <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p>	12/12/2020
IC11 MCERTS monitoring	<p>The operator shall review the provision of MCERTS accreditation for the monitoring equipment, personnel and organisations employed for the emissions monitoring programme for AR8 and AR9 under conditions 3.3.1 and 3.3.3 and propose a timetable in a written report to the Agency for achieving this standard for any elements that are not MCERTS certified.</p> <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p>	12/12/2020

Table S1.4 Pre-operational measures for future development		
Reference	Operation	Pre-operational measures
PO 01	Switch use of borehole X4 at Wellsite X from production to re-injection	<p>The operator must notify the Environment Agency at least 10 working days prior to commencing the groundwater activity AR11 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 (AR11) 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 (AR11) iii. confirm, with suitable data, that there have been no changes to the well integrity of borehole X4, approved by the HRA 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 and S1.3, 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 and S1.3 for the activity. <p>The activity AR11 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>If not previously submitted under condition 3.6 of this permit; the operator shall undertake at least 3 samples of groundwater from each monitoring borehole and 3 samples of surface water. Sampling shall be carried out monthly over a minimum period of 3 months prior to the commencement of the re-injection activity. The results of the groundwater and surface water monitoring shall be submitted to the Environment Agency at least 10 working days prior to commencing the groundwater activity A13 listed in table S1.1.</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 A13 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
-	-

The storage of hazardous extractive waste is limited to temporary storage in secure containment as part of the collection and transportation of waste from the site. The storage of extractive waste shall not exceed a period of 3 months.

Non-extractive wastes are not accepted as part of the permitted activities and there are no restrictions on raw materials or fuel 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 site plan in Schedule 7]	Gas turbine (Unit A)	Nitrogen dioxide	Less than 82mg / Nm ³	Spot	Annually	BS EN 14792 BS EN 15058 Or as agreed in writing with the Environment Agency
		Carbon monoxide	Less than 50 mg / Nm ³	Spot	Annually	
		Sulphur dioxide	Less than 3 mg / Nm ³	Spot	Annually	
		Engine gas feed flow rate	-	-	Continuous	Note 1
A2 [point A2 on site plan in Schedule 7]	Gas turbine (Unit B)	Nitrogen dioxide	Less than 82mg / Nm ³	Spot	Annually	BS EN 14792 BS EN 15058 Or as agreed in writing with the Environment Agency
		Carbon monoxide	Less than 50 mg / Nm ³	Spot	Annually	
		Sulphur dioxide	Less than 3 mg / Nm ³	Spot	Annually	
		Engine gas feed flow rate	-	-	Continuous	Note 1
A3 [point A3 on site plan in Schedule 7]	HP Production crude heater	Oxides of nitrogen	Less than 150 mg/Nm ³	Spot	Annually	As agreed in writing with the Environment Agency
		Carbon monoxide	Less than 600 mg/Nm ³			
A4 [point A4 on site plan in Schedule 7]	LP ground Flare	Oxides of nitrogen	No limit set Note 2	-	Monthly by calculation	As agreed in writing with the Environment Agency Note 2
		Carbon monoxide				
		Total volatile organic compounds (VOCs)				
		Methane				
		Flare gas feed flow rate	27 tonnes per day	-	Continuous	
		Temperature	> 800 deg C	-	As agreed in writing with the Environment Agency after completion of improvement condition IC5	

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
A5 [point A5 on site plan in Schedule 7]	HP ground flare	Oxides of nitrogen	No limit set Note 2	-	Monthly by calculation	As agreed in writing with the Environment Agency Note 2
		Carbon monoxide		-		
		Total volatile organic compounds (VOCs)		-		
		Methane		-		
		Flare gas feed flow rate	182.4 tonnes per day	-	Continuous	
		Temperature	> 800 deg C	-	As agreed in writing with the Environment Agency after completion of improvement condition IC5	
A6 [point A6 on site plan in Schedule 7]	Produced water Storage tank vent	Hydrogen sulphide	5.7 mg/m ³	-	Monthly	As agreed in writing with the Environment Agency
		Gas vented	-	Month	Monthly	Calculation to determine the quantity of gas vented over the reference
A7 [point A7 on site plan in Schedule 7]	Gas turbine, (unit C)	Nitrogen dioxide	Less than 82 mg / Nm ³	Spot	Annually	As agreed in writing with the Environment Agency
		Carbon monoxide	Less than 50 mg / Nm ³	-	Annually	
		Sulphur dioxide	Less than 3 mg / Nm ³	Spot	Annually	
		Engine gas feed flow rate	-	-	Continuous	
A8 [point A8 on site plan in Schedule 7]	Regeneration Gas heater	Nitrogen dioxide	Less than 150 mg / Nm ³	Spot	Annually	Note 1
		Carbon monoxide	less than 600 mg/Nm ³	Spot	Annually	
A9 [point A9 on site plan in Schedule 7]	Emergency Vent on Gas Storage Plant	Natural gas	No Limit	None	None	

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A10 [point A10 on site plan in Schedule 7]	Oil Storage tank vent on Oil Storage Plant	Hydrogen sulphide	5.7 mg/m ³	-	Monthly	As agreed in writing with the Environment Agency
		Gas vented	-	Month	Monthly	Calculation to determine the quantity of gas vented over the reference

Note 1: The reference conditions for gas turbines (15% O₂, dry gas, 273.15K and 101.325kPa)

Note 2 This monitoring standard shall be in accordance with the latest Environment Agency Technical Guidance Note (Monitoring) M2 standard and as may subsequently be agreed in writing with the Environment Agency following revisions to the M2 guidance, or following completion of IC6.

Discharge source and discharge point ref. & location	Parameter	Limit (including unit)	Reference Period	Limit of effective range	Monitoring frequency	Compliance Statistic
W2-5: AR8: Discharge of trade effluent consisting of natural gas for storage purposes via injection boreholes A8z, A9z, A10 and A11 into the Great Oolite Formation	Maximum daily discharge volume	4,000,000 m ³ /day per injection borehole	Total daily volume	N/A	Continuous	Maximum
	Maximum rate of discharge	77,000 litres per second per injection borehole	Instantaneous (spot sample)	N/A	Continuous	Maximum
W7 and 8: AR9: Discharge of trade effluent consisting of natural gas for storage purposes via injection boreholes A13 and A15 into the Rhaetic Formation	Maximum daily discharge volume	3,000,000 m ³ /day per injection borehole	Total daily volume	N/A	Continuous	Maximum
	Maximum rate of discharge	61,000 litres per second per injection borehole	Instantaneous (spot sample)	N/A	Continuous	Maximum
W9-W10: AR10: Discharge of produced water from oil and gas extraction to	Maximum daily discharge volume	175 m ³ /day	Total daily volume	N/A	Continuous	Maximum
	Maximum rate of discharge	2 litres per second	Instantaneous (spot sample)	N/A	N/A	Maximum

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
ground via re-injection boreholes X2 and X3 at Wellsite X	15-minute instantaneous or averaged flow	No limit set. Record as l/s	15 minute	N/A	Continuous	N/A
W11: AR11: Discharge of produced water from oil and or gas extraction to ground via re-injection borehole X4 at Wellsite X *Subject to pre-operational conditions PO 01-03 in Table S1.3	Maximum daily discharge volume	175 m ³ /day	Total daily volume	N/A	Continuous	Maximum
	Maximum rate of discharge	2 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	Continuous	N/A
W12-14: AR12: Discharge of treated site surface water to ground via 3 Outlets at Wellsite A as shown in site plan in schedule 7	Maximum daily discharge volume	450 m ³ /day	Total daily volume	N/A	Continuous	Maximum
	Maximum rate of discharge	12 litres per second	Instantaneous (spot sample)	N/A	N/A	Maximum
	Total Petroleum Hydrocarbons	2.0 mg/l (see note 1)	Instantaneous (spot sample)	N/A	Monthly	Maximum
	Chloride	150 mg/l (see note 1)	Instantaneous (spot sample)	N/A	Monthly	Maximum
	pH	6 to 9	Instantaneous (spot sample)	N/A	Monthly	Minimum and Maximum
	Sodium	200 mg/l (see note 1)	Instantaneous (spot sample)	N/A	Monthly	Maximum
W15-17: AR13: Discharge of treated site surface water to ground via 3 Outlets at Wellsite X as shown in site plan in schedule 7	Maximum daily discharge volume	450 m ³ /day	Total daily volume	N/A	Continuous	Maximum
	Maximum rate of discharge	12 litres per second	Instantaneous (spot sample)	N/A	N/A	Maximum
	Total Petroleum Hydrocarbons	2.0 mg/l (see note 1)	Instantaneous (spot sample)	N/A	Monthly	Maximum
	Chloride	150 mg/l (see note 1)	Instantaneous (spot sample)	N/A	Monthly	Maximum
	pH	6 to 9	Instantaneous (spot sample)	N/A	Monthly	Minimum and Maximum

Discharge source and discharge point ref. & location	Parameter	Limit (including unit)	Reference Period	Limit of effective range	Monitoring frequency	Compliance Statistic
	Sodium	200 mg/l (see note 1)	Instantaneous (spot sample)	N/A	Monthly	Maximum
W18-20: AR14-17: Discharge of treated site surface water to ground via 3 Outlets at the Gathering Site (1 at Oil Plant and 2 at Gas Plant) as shown in site plans in schedule 7	Maximum daily discharge volume	450 m ³ /day	Total daily volume	N/A	Continuous	Maximum
	Maximum rate of discharge	12 litres per second	Instantaneous (spot sample)	N/A	N/A	Maximum
	Total Petroleum Hydrocarbons	2.0 mg/l (see note 1)	Instantaneous (spot sample)	N/A	Monthly	Maximum
	Chloride	150 mg/l (see note 1)	Instantaneous (spot sample)	N/A	Monthly	Maximum
	pH	6 to 9	Instantaneous (spot sample)	N/A	Monthly	Minimum and Maximum
	Sodium	200 mg/l (see note 1)	Instantaneous (spot sample)	N/A	Monthly	Maximum
Note 1: Interim limit based on method of treatment and Drinking Water Standard where relevant. May be revised following completion of IC8.						

Effluent name	Discharge Point	Discharge point NGR	Receiving water / environment
AR10 and AR11: Discharge of produced water from oil and gas extraction to re-injection boreholes at Wellsite X	W9 (Borehole X2)	In a north easterly direction between NGRs: SU 71143 44808 (well surface location) and SU 71852 45121 (reservoir interface)	Great Oolite Formation via injection boreholes
	W10 (Borehole X3)	In a south westerly direction between NGRs SU 71141 44790 (well surface location) and SU 71001 44485 (reservoir interface)	
	W11 (Borehole X4)	In a northerly direction between NGRs SU 71117 45085 (well surface location) and SU 71132 45178 (reservoir interface)	
AR8: Injection of produced gas from oil and gas extraction and NTS to re-injection boreholes A8z, A9z, A10 and A11 at Wellsite A	W2 (Borehole A8z)	In a north westerly direction between NGRs SU 70542 45309 (well surface location) and SU 70090 45628 (reservoir interface)	Groundwater via four boreholes constructed into the Great Oolite Formation

Effluent name	Discharge Point	Discharge point NGR	Receiving water / environment
AR8: Injection of produced gas from oil and gas extraction and NTS to re-injection boreholes A8z, A9z, A10 and A11 at Wellsite A	W3 (Borehole A9z)	In a north westerly direction between NGRs SU 70523 45272 (well surface location) and SU 70291 45437 (reservoir interface)	Groundwater via four boreholes constructed into the Great Oolite Formation
	W4 (Borehole A10)	In a westerly direction between NGRs SU 79540 45305 (well surface location) and SU 70372 45313 (reservoir interface)	
	W5 (Borehole A11)	In a easterly direction between NGRs SU 70526 45276 (well surface location) and SU 70850 45323 (reservoir interface)	
AR9: Trade effluent consisting of natural gas for storage purposes at Wellsite A	W7 (Borehole A13)	In a northerly direction between NGRs SU 70538 45304 (well surface location) and SU 70630 45695 (reservoir interface)	Groundwater via two boreholes constructed into the Rhaetic Formation
	W8 (Borehole A15)	In a northerly direction between NGRs SU 70534 45294 (well surface location) and SU 70524 45544 (reservoir interface)	
AR12: Discharge of treated site surface water to ground via 3 soakaways at Wellsite A	W12 W13 W14	SU 70500 45260 SU 70570 45290 SU 70540 45350	Groundwater via soakaway
AR13: Discharge of treated site surface water to ground via 3 soakaways at Wellsite X	W15 W16 W17	SU 71102 44786 SU 71109 44819 SU 71163 44807	Groundwater via soakaway
AR14: Discharge of treated site surface water to ground via soakaway at Oil Plant	W18	SU 69240 44380	Groundwater via soakaway
AR15: Discharge of treated site surface water to ground via 2 soakaways at Gas Plant	W19 W20	SU 69197 44567 SU 69186 44572	Groundwater via soakaway

Effluent(s) and discharge point(s)	Monitoring type	Monitoring point NGR	Monitoring point reference
AR10 and AR11: Discharge of Produced water from oil and gas extraction to re-injection boreholes X2, X3 and X4 at Wellsite X	Flow monitoring	SU 71151 44830	X2 Flow monitoring point
	Flow monitoring	SU 71160 44836	X3 Flow monitoring point
	Flow monitoring	SU 71141 44795	X4 Flow monitoring point
AR 8: Trade effluent consisting of natural gas for storage purposes via boreholes A8z, A9z, A10 and A11 at Wellsite A	Flow monitoring	SU 70536 45300	A8z Flow monitoring point
	Flow monitoring	SU 70522 45268	A9z Flow monitoring point
	Flow monitoring	SU 70535 45298	A10 Flow monitoring point

Effluent(s) and discharge point(s)	Monitoring type	Monitoring point NGR	Monitoring point reference
AR 8: Trade effluent consisting of natural gas for storage purposes via boreholes A8z, A9z, A10 and A11 at Wellsite A	Flow monitoring	SU 70523 45271	A11 Flow monitoring point
AR 9: Trade effluent consisting of natural gas for storage purposes via boreholes A13 and A15 at Wellsite A	Flow monitoring	SU 70538 45304	A13 Flow monitoring point
	Flow monitoring	SU 70534 45294	A15 Flow monitoring point
AR13: Discharge of treated site surface water to ground via outlets W15, W16 and W17 at Wellsite X	Effluent sampling	SU 71102 44786 (W15)	Effluent sample point
	Flow monitoring	SU 71109 44819 (W16)	Flow monitoring point
		SU 71163 44807 (W17)	
AR12: Discharge of treated site surface water to ground via outlets W12, W13 and W14 at Wellsite A	Effluent sampling	SU 70500 45260 (W12)	Effluent sample point
	Flow monitoring	SU 70570 45290 (W13)	Flow monitoring point
		SU 70540 45350 (W14)	
AR14: Discharge of surface water from process areas collected in peripheral ditch via interceptor to ground at Oil Plant outlet W18	Effluent sampling	SU 69240 44380 (W18)	Effluent sample point
	Flow monitoring		Flow monitoring point
AR15: Discharge of treated site surface water to ground via Outlets W19 and W20 at the Gas Plant	Effluent sampling	SU 69197 44567 (W19)	Effluent sample point
	Flow monitoring	SU 69186 44572 (W20)	Flow monitoring point

Location or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Groundwater monitoring locations as specified in the 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, or as updated following approval of IC3 in Table S1.3	As specified in Groundwater monitoring plan in Table S1.2, or as updated 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

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	Gas to oil ratio of production from the installation
A8z, A9z, A10, A11, A13, A15	Gas Injection borehole integrity monitoring summary report	Annually	In accordance with HRA as referenced in Table S1.2	N/A

X2, X3 and X4 at Wellsite X	Well integrity monitoring summary report	Annually	In accordance with HRA as referenced in Table S1.2	N/A
X2, X3 and X4 at Wellsite X	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	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, A4, A5, A6, A7 and A8	Every 12 months	1 January
Process chemicals in re-injected produced water Parameters as required by condition 3.5.1	W9-W11	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	W9-W11	Every 6 months	1 January, 1 July
Emissions to groundwater (discharges to soakaway: total daily volume and rate of discharge, chloride, PH, sodium and TPH).	W12-W20	Every 6 months	1 January, 1 July
Emissions to groundwater (discharge of natural gas: total daily volume and rate of discharge) as required by condition 3.5.1 and listed in Table S3.2	W2 to W5, W7 and W8	Every 6 months	1 January, 1 July
Groundwater monitoring as listed in Table S3.5	As table S3.5	Every 6 months	1 January, 1 July
Process Monitoring summary report on well integrity monitoring Parameters as required by condition 3.1	W2-W5, W7-W11	Every 12 months	1 January

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
Total daily volume and rate of discharge	WISKI electronic format specified by the Environment Agency or some other format agreed in writing by the Environment Agency	DD/MM/YY
Groundwater Monitoring	Form as agreed in writing by the Environment Agency	DD/MM/YY
Process monitoring: Gas Injection and Produced Water Re-injection borehole integrity monitoring summary report	Form 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	
Name of operator	
Location of Facility	
Time and date of the detection	

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

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

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Measures taken, or intended to be taken, to stop the emission	

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

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

Part B – to be submitted as soon as practicable

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

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

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

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

“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.

“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).

“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.

“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.

“NTS” means National Transmission System.

“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.

“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.

Figure 2: Site plan showing wellsites and Installation boundary

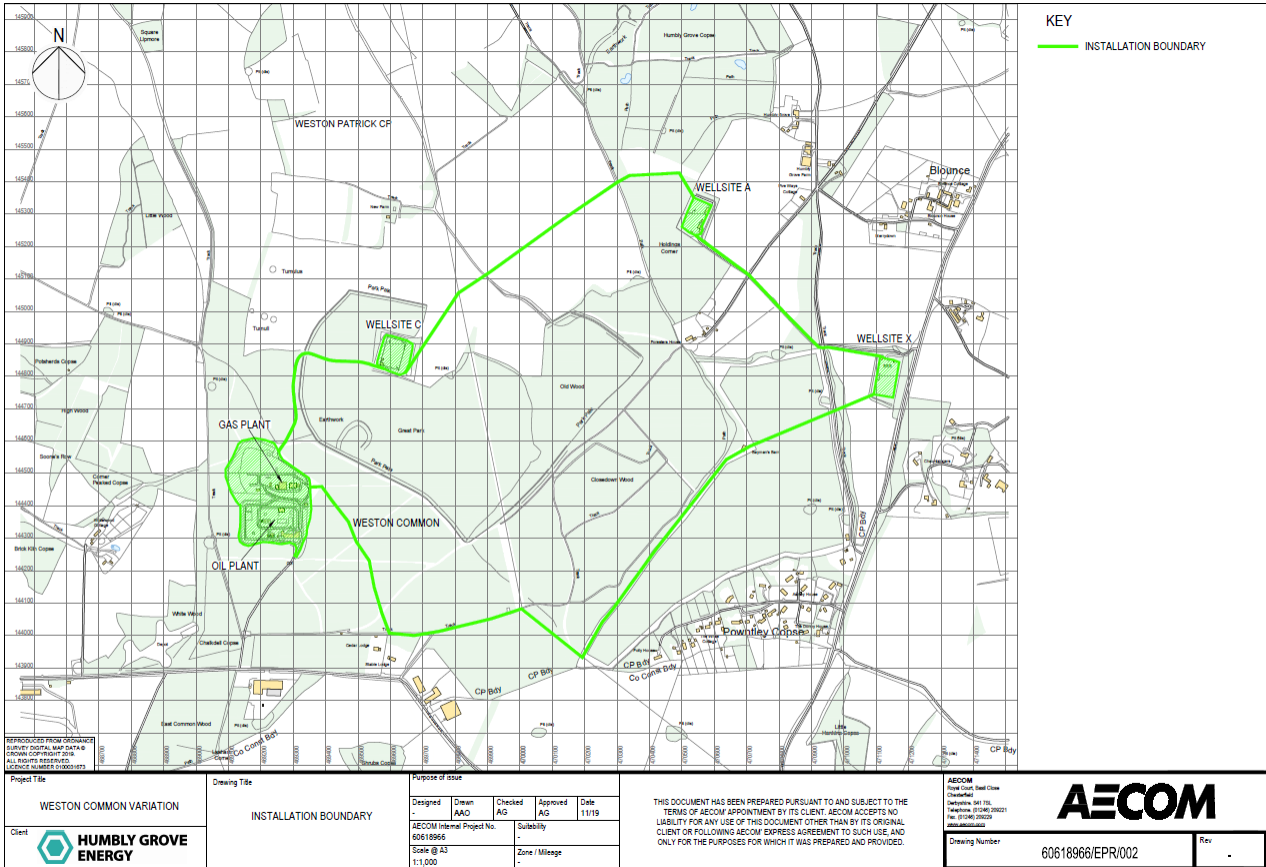


Figure 3: Gathering site (Oil Plant) layout plan

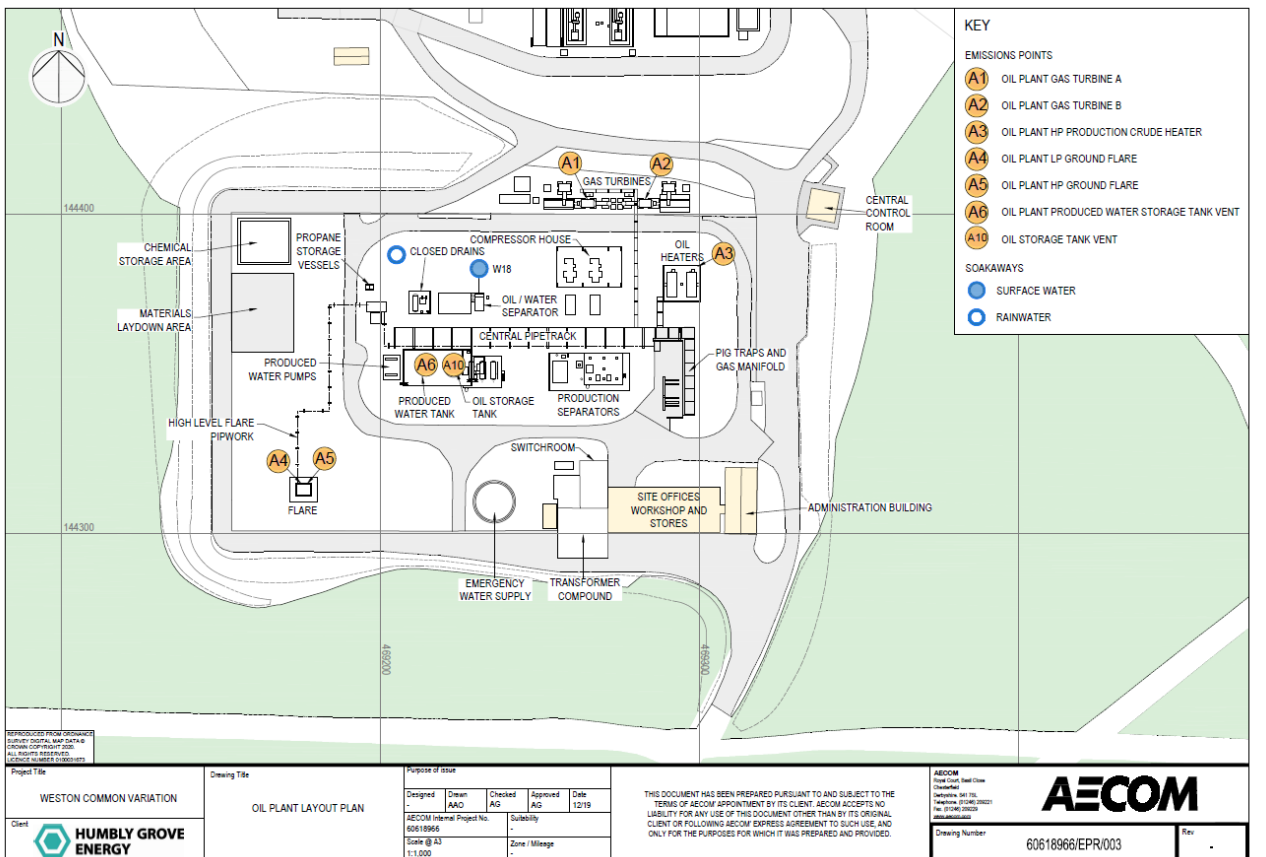


Figure 4: Gathering Site (Gas Plant) layout plan

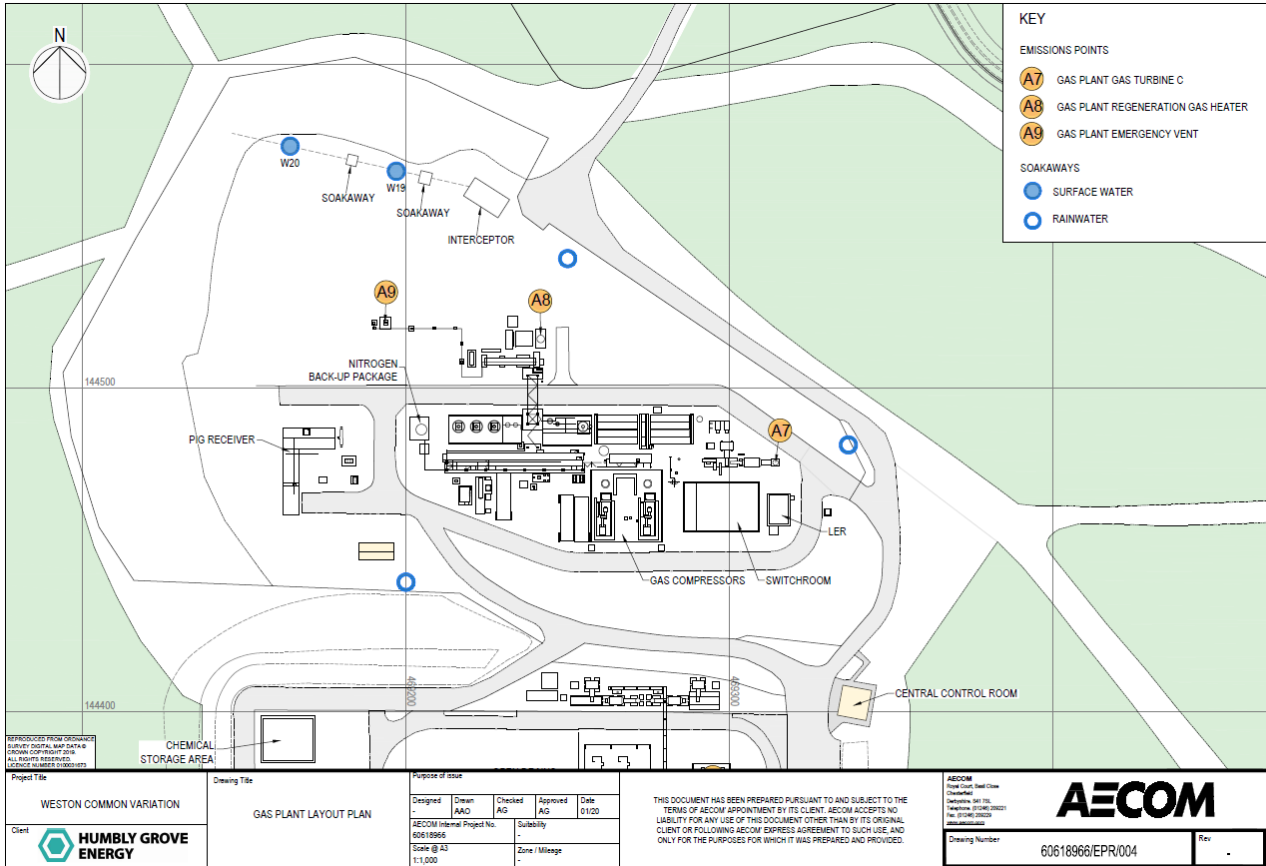


Figure 5: Wellsite A layout plan

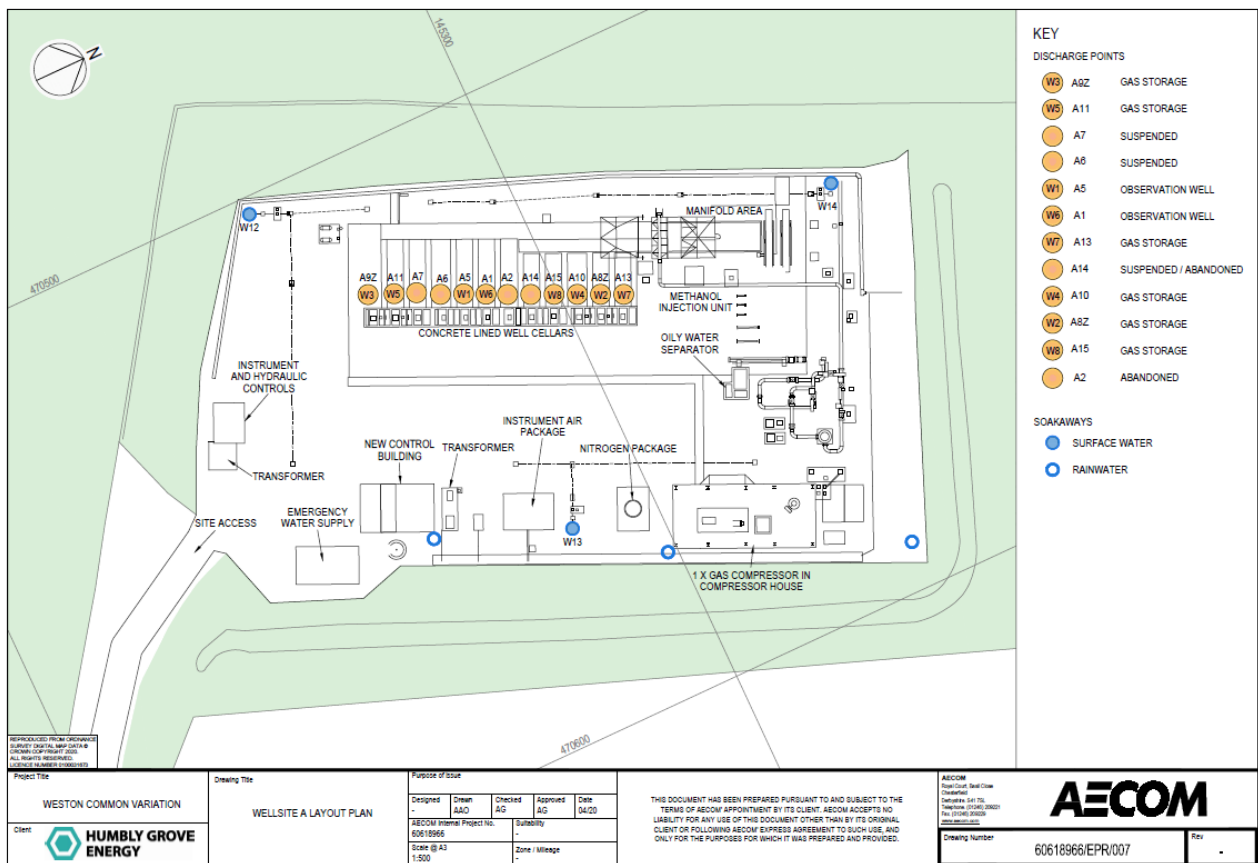


Figure 6: Wellsite X layout plan

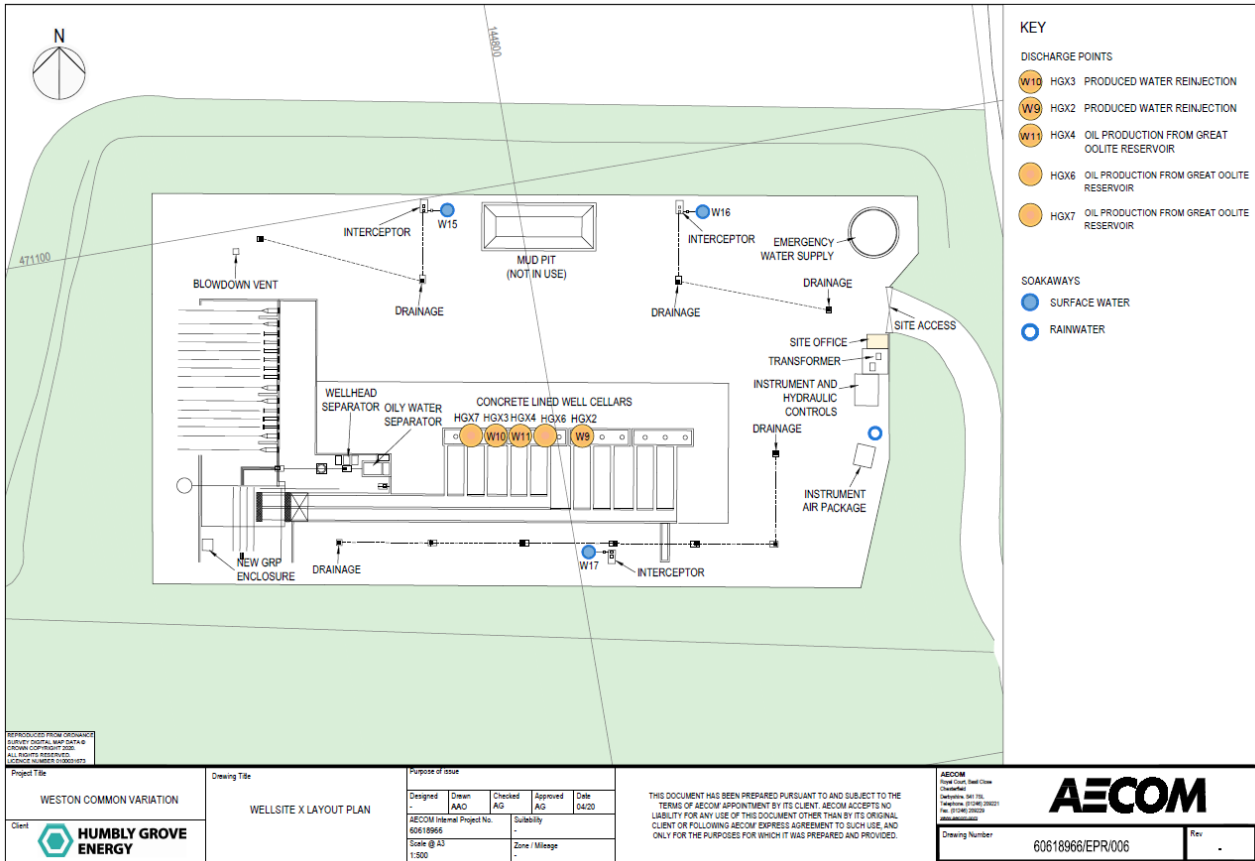
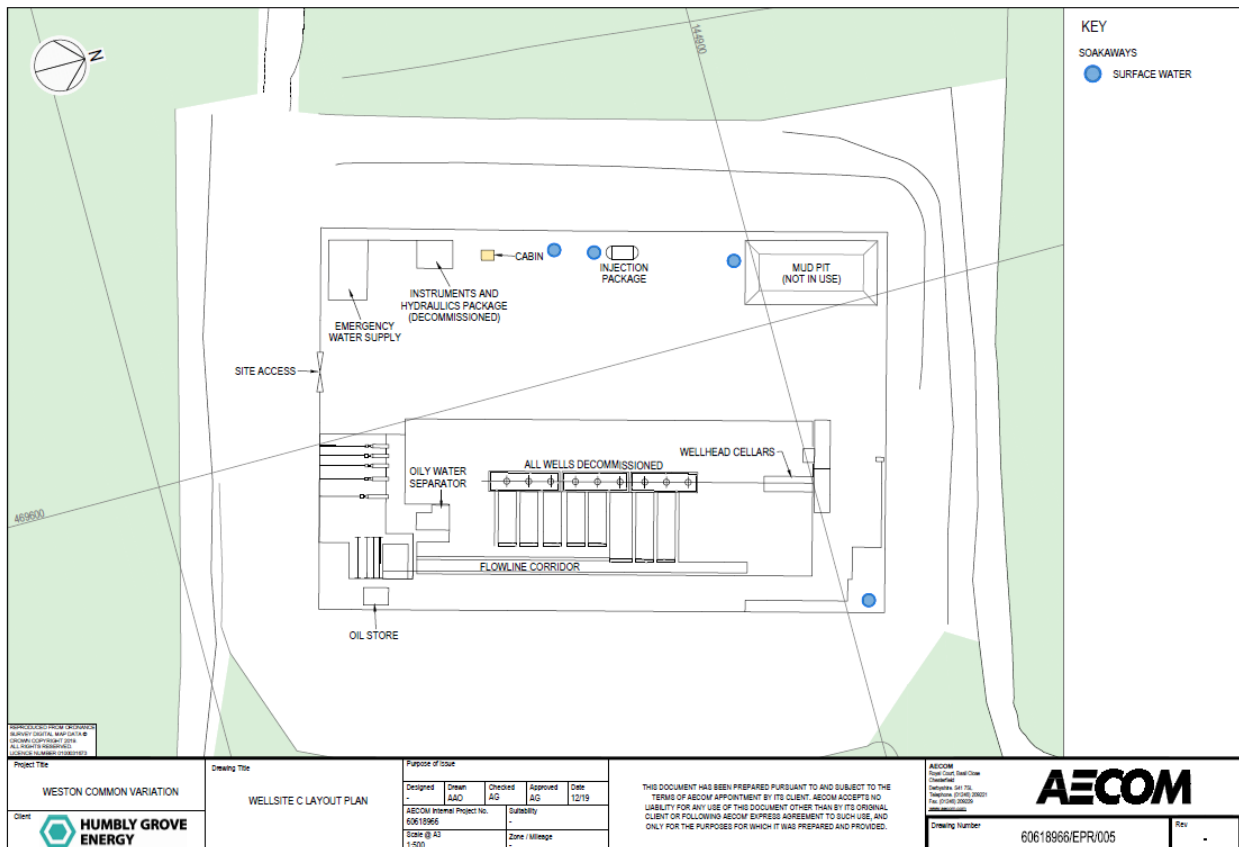


Figure 7: Wellsite C layout plan - production ceased and wells abandoned, infrastructure remains



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