



Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Island Gas Limited

Horndean B, C and X Well Sites

Horndean B Well Site

Sheepwash Road

Horndean

Hampshire

PO8 0DS

Variation application number

EPR/GP3231CJ/V002

Permit number

EPR/GP3231CJ

Horndean B, C and X Well Sites

Permit number EPR/GP3231CJ

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. A Mining Waste Operation, as defined by the Mining Waste Directive 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 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. Groundwater activity (emission point W1) has been removed for re-injection of produced water to ground, due to the vulnerability of the local groundwater environment (source protection zone 1). Produced water is now being taken by tanker to Stockbridge Oilfield for re-injection to support production support.
4. The removal of interceptors and soakaways at Well Sites C and X, previously known as emission points W2 and W3. There are no surface water discharges from Horndean B, Horndean C and Horndean X. All surface water is collected and exported with produced water to Stockbridge for reinjection. Improvement condition 7 is included in this variation to review surface water management on site.

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 of 3 associated oil production sites at Horndean B, Horndean C and Horndean X Well Sites, near Horndean in Hampshire. Crude oil together with admixed reservoir water is pumped to storage tanks on each site by pipeline. The total oil storage capacity is 351 tonnes. Produced water naturally separates out by gravity in the oil storage tanks at each site, and is sent by tanker to Stockbridge Oilfield for re-injection into the Oolite producing reservoir to aid production support.

The oil storage tanks are emptied as required and oil is exported offsite by road tanker. Associated gas, released when the oil is depressurised, is routed through an activated carbon absorption unit to remove hydrogen sulphide before being vented to atmosphere through the vent stack.

Surface water collected in the storage tank bunds at Horndean B, Horndean C and Horndean X Well Sites is transferred to the onsite produced water tanks and removed from site for reinjection into the reservoir at

Stockbridge Oilfield. Electrical power for the sites is sourced from the national grid. Each well site is capable of operating independently.

The principal releases into the environment comprise of:

- (a) Emissions to air of hydrocarbon gases from storage tanks following separation of volatiles in storage.
- (b) Emissions to air of hydrocarbon gases from the road tanker by displacement on loading, captured via a vapour recovery system.
- (c) Releases of engineering waste resulting from maintenance work is removed for disposal at a licensed waste disposal facility.

The installation operates an Environmental Management System which is externally audited.

There are no SSSIs within 2km of the installation. The installation has six European designated sites (SAC, Ramsar and SPA) within 10km, situated around the south-east Hampshire area, including the Solent and associated harbours of Chichester and Portsmouth. The closest European designated sites are Buster Hill (SAC), Chichester and Langstone Harbours (Ramsar, SPA) and the Solent Maritime (SAC), all of which are situated 7.2 km from 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 PP3137LS	Duly made 30/08/06	-
Additional information received (Reference PGRX0055)	04/12/06	Requested 14/11/06
Permit determined PP3137LS	25/05/07	-
Transfer to new operating company BP3839XA	22/01/08	-
Variation application EPR/BP3839XA/V002	Duly made 03/01/12	Change of company's registered office address.
Permit determined EPR/BP3839XA	06/02/12	Variation issued.
Transfer Application EPR/GP3231CJ/T001 (Full transfer of permit EPR/BP3839XA)	Duly made 29/06/12	Application to transfer permit in full to Island Gas Limited.
Transfer determined EPR/GP3231CJ	06/08/12	Full transfer of permit.
Application EPR/GP3231CJ/V002 (Variation and consolidation under permit review)	Duly made 18/01/17	Application to add a mining waste operation, remove re-injection of produced water and surface water, remove soakaways and to update the permit to modern conditions.
Schedule 5 Notice response received	23/08/17	Confirmation of site boundary.
Additional information received	07/03/18, 11/04/18	Withdrawal of groundwater activity for re-injection with revised application documents.

Status log of the permit		
Description	Date	Comments
Permit variation and consolidation under permit review determined EPR/GP3231CJ Billing references: PAS NP3733YW EAWML 403877	05/04/2019	

Other permits relating to this installation		
Operator	Permit number	Date of issue
Island Gas Limited	Standard Rules (SR2014 No.4) radioactive substances permit for NORM wastes from oil prospecting. EPR/SB3691DY	05/04/2019

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/GP3231CJ

Issued to

Island Gas Limited (“the operator”),

whose registered office is

7 Down Street

London

W1J 7AJ

company registration number 04962079

to operate an installation and a mining waste operation at

Horndean B, C and X Well Sites

Horndean B Well Site

Sheepwash Road

Horndean

Hampshire

PO8 0DS

to the extent set out in the schedules.

The notice shall take effect from 05/04/2019

Name	Date
Principal Permitting Team Leader	05/04/2019

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/GP3231CJ

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/GP3231CJ/V002 authorising,

Island Gas Limited (“the operator”),

whose registered office is

7 Down Street

London

W1J 7AJ

company registration number 04962079

to operate an installation and a mining waste operation at

Horndean B, C and X Well Sites

Horndean B Well Site

Sheepwash Road

Horndean

Hampshire

PO8 0DS

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

Name	Date
Principal Permitting Team Leader	05/04/2019

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 and A2) 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 and A2) 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 layout plans at schedule 7 to this permit.

2.3 Operating techniques

- 2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.
- 2.3.2 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 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

2.4 Improvement programme

- 2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.
- 2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

3 Emissions and monitoring

3.1 Emissions to water, air or land

- 3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 table S3.1.
- 3.1.2 The limits given in schedule 3 table S3.1 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.

3.3 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 table S3.1;

- (b) groundwater specified in table S3.2;
 - (c) process monitoring specified in table S3.3;
- 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 table S3.1, 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 The groundwater monitoring plan and emissions monitoring plan specified in Table S1.2, Schedule 1 shall be implemented unless otherwise agreed in writing with the Environment Agency.
- 3.5.8 Any revised groundwater monitoring plan or revised emissions 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 (A1 and A2) 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 (A1 and A2) 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 Horndean B, C and X Well Sites 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 off site 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.
	Description of activities for waste operations	Limits of activities	
A3	The management of extractive waste from production activities, not involving a waste facility.	<p>Permitted waste types shall conform to the description in the approved waste management plan.</p> <p>The activities shall be limited to those described in the approved sections of the Waste Management Plan referenced in Table S1.2 below.</p> <p>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.</p> <p>Well stimulation by hydraulic fracturing is not permitted.</p>	

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.	30/08/06
Response to request for further information issued on 14/11/06	Response from the applicant to the request for further information. Reference Number PGRX0055 (Horndean)	04/12/06
Application	Completed Gap Analysis Tool response, version 2 12 April 2017	13/07/17
Application	Appendix 10 – Chemicals information – Materials safety data sheets	10/01/17
Response to Schedule 5 Notice dated 02/06/17	Additional information provided in response to the Schedule 5 Notice	23/08/17, 11/04/18
Response to Schedule 5 Notice dated 02/06/17	Environmental Risk Appraisal, Horndean Aug 2017	23/08/17
Response to Schedule 5 Notice dated 02/06/17	De-minimis justification in response to the Schedule 5 Notice	23/08/17
Response to Schedule 5 Notice dated 02/06/17	Approved Waste Management Plan – Horndean Waste Management Plan, Permit Application EPR/GP3231CJ, as amended in response to the Schedule 5 Notice. Excluding sections 3.1.1 and 3.1.2 referring to re-injection at Horndean Well Sites.	08/03/18
Application	Confirmation of removal of re-injection from Permit as part of the variation and amended application documents.	08/03/18 11/04/18
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
Review of emissions report as approved under IC6	All of document	Date of approval of IC6
Site surface water management plan as approved under IC7	All of document	Date of approval of IC7
Well integrity monitoring plan as approved under IC9	All of document	Date of approval of IC9

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>	05/01/2020
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>	05/10/2019
IC3 <i>Groundwater Monitoring</i>	<p>The operator shall submit a revised written plan for groundwater monitoring during the operational and post decommissioning phases for each well 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. The plan will include, but not be 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(s) that monitoring boreholes in (i) are monitoring iv) groundwater sample collection and analytical procedures v) details of the proposed monitoring parameters and frequency of monitoring 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 and will be incorporated into the operating techniques in Table S1.2</p>	05/10/2019
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. 	05/07/2019

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
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 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>	05/10/2020
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>	05/10/2019
IC7 <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>	05/01/2020
IC8 <i>Site Condition Report</i>	<p>The operator shall undertake a review of the Site Condition Report (as provided in response to the Schedule 5 Notice received on 29/08/17) 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 	05/04/2020
IC9 <i>Well Integrity monitoring</i>	<p>The operator shall submit a written plan which describes how they will verify that the production, former re-injection and suspended wells are and will be operated, managed, and monitored to prevent pollution of groundwater. The plan should describe the verification and reporting procedures and include details of how and when it will be reviewed. The plan should cover the lifetime of the environmental permit until permit surrender.</p> <p>The plan should describe the improvement measures which will be taken in the event that they are unable to demonstrate that groundwater can be adequately protected. The plan shall be incorporated into the permit as an operating technique in table S1.2.</p>	05/01/2020

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 fuel under this schedule.

Schedule 3 – Emissions and monitoring

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A1 [point A1 on the Horndean B Well Site plan in Schedule 7] A2 [point A2 on the Horndean C Well Site plan in Schedule 7] A3 [point A3 on the Horndean X Well Site plan in Schedule 7]	Storage tank vent stacks	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

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 <small>See note 1</small>	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

Note 1: Once IC3 has been approved the groundwater monitoring requirements in the above table shall be replaced with the details in the approved Groundwater monitoring plan under 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	-
Production wells	Concentration and volume of all process chemicals added.	Monthly	N/A	-
Production wells following approval of IC9	Well integrity monitoring summary report	Annually	In accordance with HRA as referenced in Table S1.2	Production wells following approval of IC9

Table S3.4 Point source emissions to sewer, effluent treatment plant or other transfers off-site– emission limits and monitoring requirements						
Emission point reference & location	Source	Parameter	Limit (incl. Unit)	Reference period	Monitoring frequency	Monitoring standard or method
Transfer of produced water and surface water from Hordean B, C and X sites to Stockbridge Oilfield for reinjection as production support.	Production of crude oil	None	None	N/A	N/A	None

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 (Vent stack storage vents)	Every 6 months	1 January, 1 July
Discharge of process chemicals in production wells	Production wells	Every 6 months	1 January, 1 July
Groundwater monitoring as listed in Table S3.2	As Table S3.2	Every 6 months	1 January, 1 July
Process monitoring Parameters as required by condition 3.5.1	As Table S3.3	Every 12 months	1 January

Table S4.2 Annual production/treatment	
Parameter	Units
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
Process monitoring	Form process monitoring 1 or other form as 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/GP3231CJ
Name of operator	Island Gas Limited
Location of Facility	Horndean B, C and X Well Sites
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.

“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.

“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.

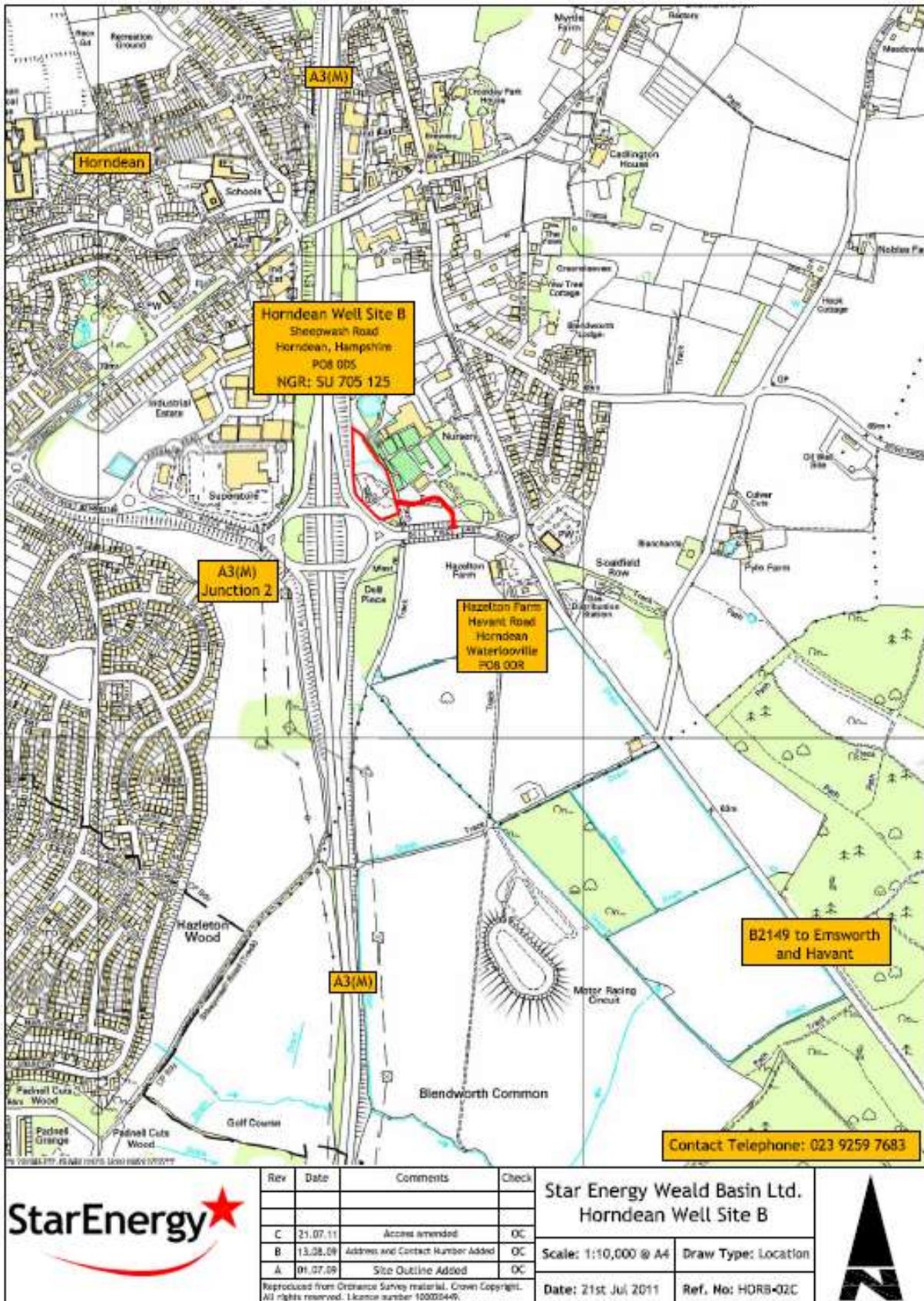
Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

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.

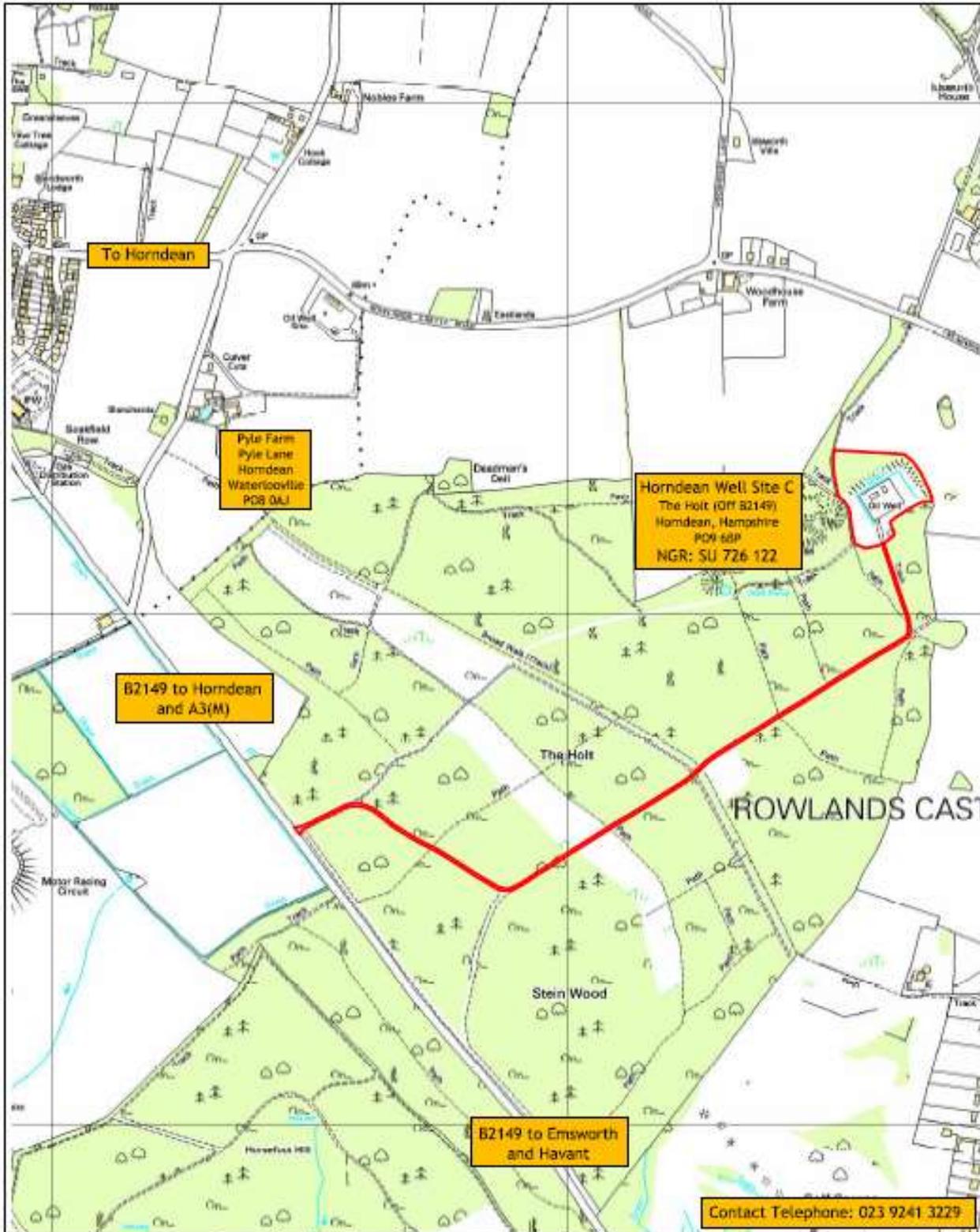
Schedule 7 – Site plans

Location Plan 1 - Horndean B Well Site



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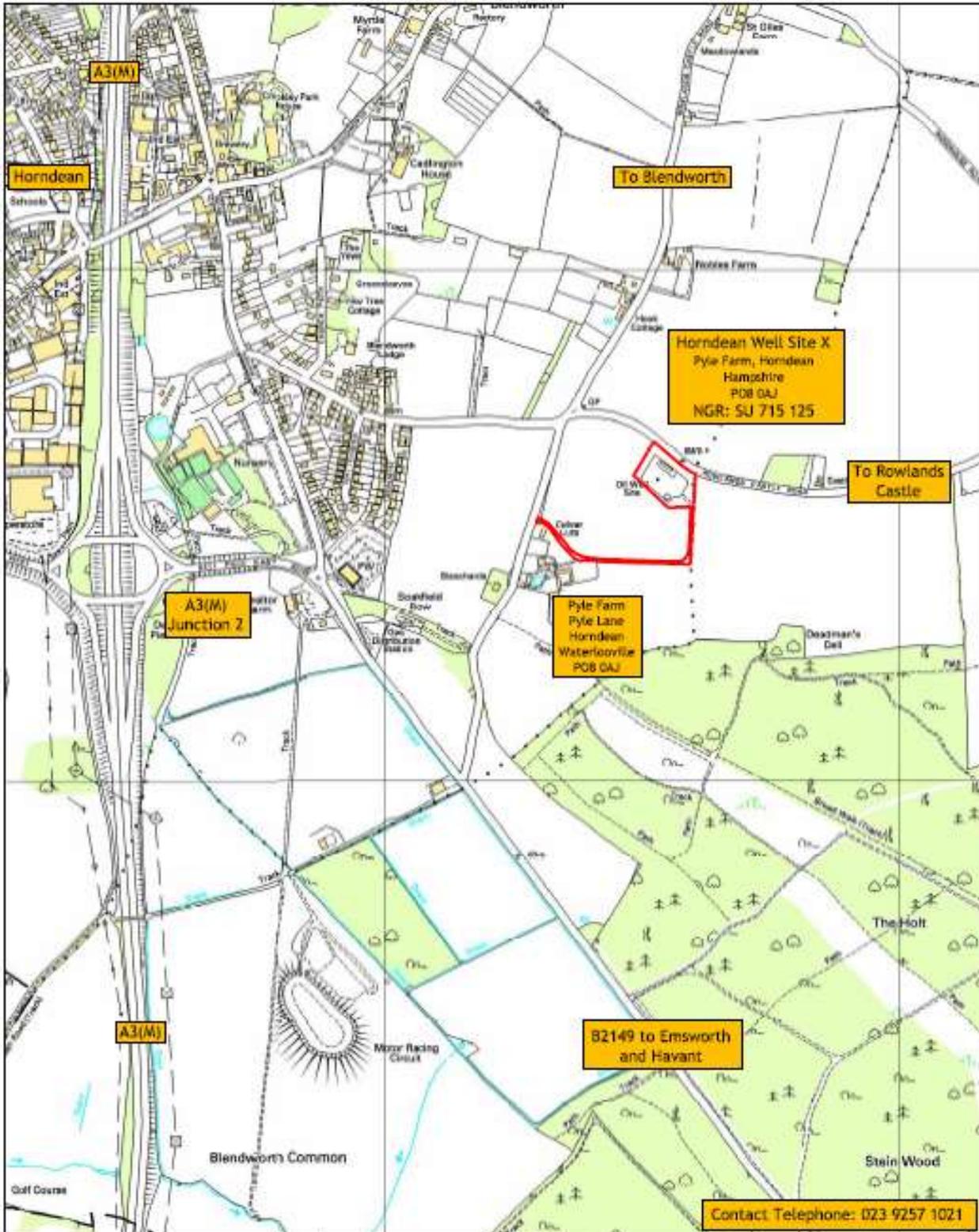
Location Plan 2 - Horndean C Well Site



	Rev	Date	Comments	Check	Star Energy Weald Basin Ltd. Horndean Well Site C		
	B	13.08.09	Address and Contact Number Added	OC	Scale: 1:10,000 @ A4	Draw Type: Location	
	A	01.07.09	Site Outline Added	OC	Date: 13th Aug 2009	Ref. No: HDRC-028	
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Location Plan 3 - Horndean X Well Site



	Rev	Date	Comments	Check	Star Energy Weald Basin Ltd. Horndean Well Site X		
					Scale: 1:10,000 @ A4	Draw Type: Location	
	B	13.08.09	Address and Contact Number Added	OC	Date: 13th Aug 2009	Ref. No: H0RX-02B	
	A	01.07.09	Site Outline Added	OC			
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Permit Number:

EPR/GP3231CJ

Operator:

Island Gas Limited

Facility:

Horndean B, C and X Well Sites

Form Number:

Process monitoring 1 / DD/MM/YY

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

Parameter	Units
Concentration and volume of all process chemicals added to production wells as defined in the Hydrogeological Risk Assessment in table S1.2.	
Well integrity reporting as agreed under IC9	
Gas to Oil ratio	

Operator's comments:

Signed

Date.....

(Authorised to sign as representative of Operator)