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Wales**

## **Permit with introductory note**

The Environmental Permitting (England & Wales) Regulations 2010

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**SOUTH HOOK LNG TERMINAL  
COMPANY LTD.**

South Hook LNG Terminal  
Dale Road  
Herbrandston  
Milford Haven  
Pembrokeshire  
Wales  
SA73 3SU

Permit number  
EPR/XP3538LD

# **South Hook Liquefied Natural Gas Terminal**

## **Permit number EPR/XP3538LD**

### **Introductory note**

#### **This introductory note does not form a part of the permit**

The main features of the permit are as follows.

This variation permits the LNG Terminal to utilise surplus heat supplied by a potential combined heat and power plant (CHP Plant) that would be located and independently operated adjacent to the LNG Terminal, by circulating heat from the CHP Plant through modifications to the existing submerged combustion vaporisers (SCVs) in the LNG Terminal.

In addition the LNG Terminal would be in a position to return, via a 'split' circulating water system (CWS), 'cold' to the CHP plant for use as cooling water in the Steam Turbine Generator (STG) condenser system (to cool and condense steam exiting the STG), in addition to a CHP Plant direct air-cooled fin fan cooling system. The modified SCVs would remain able to operate as currently permitted, burning natural gas as fuel to provide the heat to the SCV water baths as required.

The LNG Terminal is located near Herbrandston, in the county of Pembrokeshire, Wales. The potential CHP Plant site would lie immediately adjacent to the installation boundary of the existing LNG Terminal, on land previously identified for "future expansion" in the planning permission granted for the LNG Terminal.

The LNG Terminal reheats LNG to produce natural gas with target average natural gas send out capacity of 650 GWh per day, and with peak flow rate of 812 GWh per day. Using up to fifteen combustion units (aggregate to above 50 MWth). Each unit has a thermal input of 32 MWth input as an average and 40 MWth at peak flow rates.

This variation consolidates the original permit and the subsequent variation and introduces a number of changes due to the transposition of the Industrial Emissions Directive. At the same time the permit has been converted into the current EPR Permit format

LNG carriers, ships, or other vessel berthed at the LNG Terminal are not considered to be part of the EPR permitted installation.

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

<b>Status Log of the permit</b>		
<b>Detail</b>	<b>Date</b>	<b>Response Date</b>
Application BW9816IE	Duly made 17/11/03	Application for a new liquefied natural gas terminal
Additional information received	16/06/04	Response to Schedule 4 Notice dated 11/05/04
Permit determined	16/07/04	Permit issued to Esso Petroleum Company Limited
Application XP3538LD/T001 (Full transfer of permit BW9816IE)	Duly made 27/07/06	Application to transfer PPC permit
Transfer determined	01/09/06	Permit transferred from ESSO to South Hook LNG Terminal Company Ltd.
Variation application XP3538LD/V002	Duly made 14/09/06	Variation for a series of changes to the Terminal design after completion of more detailed engineering design
Additional information received	15/11/07	Supporting information regarding discharge of nitrates into the Haven
Variation determined EPR/XP3538LD	16/05/08	Varied permit issued
Application EPR/XP3538LD/V003 (variation and consolidation)	Duly made 12/03/14	Application to vary and update the permit to modern conditions
Variation determined EPR/XP3538LD	14/10/15	Varied and consolidated permit issued in modern condition format

<b>Other Part A installation permits relating to this installation</b>		
<b>Operator</b>	<b>Permit number</b>	<b>Date of issue</b>
South Hook CHP Limited	EPR/XP3936NS	21/05/15

End of introductory note

# Permit

The Environmental Permitting (England and Wales) Regulations 2010

Permit number  
**EPR/XP3538LD**

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/XP3538LD/V003 authorising,

**SOUTH HOOK LNG TERMINAL COMPANY LTD.** (“the operator”),

whose registered office is

**South Hook LNG Terminal  
Dale Road  
Herbrandston  
Milford Haven  
Pembrokeshire  
SA73 3SU**

Company registration number **04982132**

to operate an installation at

**South Hook LNG Terminal  
Dale Road  
Herbrandston  
Milford Haven  
Pembrokeshire  
SA73 3SU**

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

Name

Date

	14 <sup>th</sup> October 2015
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Eirian Macdonald

Authorised on behalf of Natural Resources Wales

# Conditions

## 1 Management

### 1.1 General management

- 1.1.1 The operator shall manage and operate the activities:
- (a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and
  - (b) using sufficient competent persons and resources.
- 1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.
- 1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

### 1.2 Energy efficiency

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

- (c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.
- 1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

## **2 Operations**

### **2.1 Permitted activities**

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

### **2.2 The site**

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

### **2.3 Operating techniques**

- 2.3.1
  - (a) 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 Natural Resources Wales.
  - (b) If notified by Natural Resources Wales that the activities are giving rise to pollution, the operator shall submit to Natural Resources Wales 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 Natural Resources Wales.
- 2.3.2 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.3 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.
- 2.3.4 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

### **2.4 Improvement programme**

- 2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by Natural Resources Wales.

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

## **3 Emissions and monitoring**

### **3.1 Emissions to water, air or land**

- 3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1, S3.2a and S3.2b.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.

### **3.2 Emissions of substances not controlled by emission limits**

- 3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.
- 3.2.2 The operator shall:
- (a) if notified by Natural Resources Wales that the activities are giving rise to pollution, submit to Natural Resources Wales 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 Natural Resources Wales.
- 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 Natural Resources Wales, 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 Natural Resources Wales that the activities are giving rise to pollution outside the site due to odour, submit to Natural Resources Wales 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 Natural Resources Wales.

### **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 Natural Resources Wales, 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 Natural Resources Wales that the activities are giving rise to pollution outside the site due to noise and vibration, submit to Natural Resources Wales 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 Natural Resources Wales.

### **3.5 Monitoring**

- 3.5.1 The operator shall, unless otherwise agreed in writing by Natural Resources Wales, undertake the monitoring specified in the following tables in schedule 3 to this permit:
- (a) point source emissions specified in tables S3.1, S3.2a and S3.2b;
  - (b) 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 Natural Resources Wales.
- 3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, S3.2a and S3.2b unless otherwise agreed in writing by Natural Resources Wales.

## **4 Information**

### **4.1 Records**

- 4.1.1 All records required to be made by this permit shall:
- (a) be legible;
  - (b) be made as soon as reasonably practicable;
  - (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and
  - (d) be retained, unless otherwise agreed in writing by Natural Resources Wales, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

- (i) off-site environmental effects; and
  - (ii) matters which affect the condition of the land and groundwater.
- 4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by Natural Resources Wales.

## 4.2 Reporting

- 4.2.1 The operator shall send all reports and notifications required by the permit to Natural Resources Wales using the contact details supplied in writing by Natural Resources Wales.
- 4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to Natural Resources Wales by 31 January (or other date agreed in writing by Natural Resources Wales) 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 Natural Resources Wales, 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 Natural Resources Wales, 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 (a) In the event 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 Natural Resources Wales,
  - (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) in the event of a breach of any permit condition the operator must immediately—
  - (i) inform Natural Resources Wales, and

- (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
  - (c) in the event of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored,
- 4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.
- 4.3.3 Where Natural Resources Wales has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform Natural Resources Wales when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to Natural Resources Wales at least 14 days before the date the monitoring is to be undertaken.
- 4.3.4 Natural Resources Wales 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 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) Natural Resources Wales 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 Natural Resources Wales shall be given at least 14 days notice before implementation of any part of the site closure plan.
- 4.3.7 Where the operator has entered into a climate change agreement with the Government, Natural Resources Wales shall be notified within one month of:

- (a) a decision by the Secretary of State not to re-certify the agreement;
- (b) a decision by either the operator or the Secretary of State to terminate the agreement; and
- (c) any subsequent decision by the Secretary of State to re-certify such an agreement.

## **4.4 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 listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
Section 1.1 A(1) (a) : Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more	Reheating LNG to produce natural gas with fifteen combustion units (aggregate to above 50 MWth).	<p>From receipt of LNG to the transfer of natural gas to the National Gas Transmission system.</p> <p>Includes the fifteen 15 metre stacks and associated devices and systems for controlling combustion conditions and emissions.</p> <p>Include the transfer of natural gas from the South Hook LNG Terminal to South Hook CHP Plant EPR/XP3936NS .</p> <p>Includes the operation of the waste water treatment plant and the collection and treatment of surface water.</p>

**Directly Associated Activity**

Directly associated activity	Receipt and storage of LNG	From receipt of LNG, including flaring and venting, to dispatch for use.
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**Table S1.2 Operating techniques**

Description	Parts	Date Received
Application	The response to questions B2.1, B2.2, B2.3, B2.4, B2.5, B2.6, B2.7.1, B2.7.2, B2.7.3, B2.8, B2.9, B2.10, B2.11 and B3.1 given in Sections 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7.0, 2.7.1, 2.7.2, 2.7.3, 2.8, 2.9, 2.10, 2.11 and Part 3 of the application.	17/11/03
Response to Schedule 4 Notice	The response to questions 4, 6, 7 and 10	16/06/04
Variation application XP3528LD/V002	Parts 2, 3, 4, 5, 6, 7, 8, 9 and associated appendices	14/09/06
Additional information	Correction of application error	15/07/07
Additional information	Supporting information	15/11/07
Variation application EPR/XP3528LD/V003	Section 2 - Management of Activities Section 3 – Operations Section 4 – Emissions and Monitoring Section 5.8 – BAT Summary Section 6 – Amendments to and regularisation of current permit EPR Environmental Permit XL3538LD Application Form Part C3 – Section 3 Operating Techniques Table 3 – Technical Standards	12/03/14

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
-	Improvement conditions 1.4.1A, 1.4.1B and 1.4.1C have all been completed	-

## Schedule 2 - Waste types, raw materials and fuels

**Table S2.1 Raw materials and fuels**

Raw materials and fuel description	Specification
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## Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method (unless as otherwise agreed in writing with the NRW)
A1 – A8 A11 - A17	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	Submerged Combustion Vaporisers	107 mg/m <sup>3</sup>	Daily mean (A8 and A11 only)	Continuous (A8 and A11 only)	ISO 10849  In respect of QAL 1 only BS EN 14181 (A8 and A11 only)
			107 mg/m <sup>3</sup>	One hour sample	Quarterly	BS EN 14792
	Carbon monoxide		-	-	Quarterly	BS EN 15058
A21 – A24	-	Nitrogen plant product nitrogen vents	-	-	-	-
A28	-	Flare (main burners and pilots)	-	-	-	-
A29 – A32	-	Tank 1 relief vents	-	-	-	-
A33 – A36	-	Tank 2 relief vents	-	-	-	-
A37 – A40	-	Tank 3 relief vents	-	-	-	-
A41 – A44	-	Tank 4 relief vents	-	-	-	-
A45 – A48	-	Tank 5 relief vents	-	-	-	-
A51 – A54	-	Nitrogen plant (adsorption system) air purification vents	-	-	-	-
A63 – A66	-	Instrument air dryer vents	-	-	-	-
A70 – A84	-	SCV pressure relief valves	-	-	-	-
A85 – A99	-	SCV Burner Management System Fuel Gas Pilot and Interstage vents	-	-	-	-
A100 - A114	-	SCV Burner Management System Fuel Gas Main Burner vents	-	-	-	-
A115 - A116	-	Essential Emergency Generators A & B	-	-	-	-

**Table S3.1 Point source emissions to air – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)-these limits do not apply during start up or shut down.</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method (unless as otherwise agreed in writing with the NRW)</b>
A117 - A118	-	Diesel Firewater pumps A & B	-	-	-	-
A119	-	Jetty Firewater pump	-	-	-	-
A120 –A124	-	Nitrogen plant (adsorption system) waste gas vents	-	-	-	-
A125 –A128	-	Nitrogen plant main air compressors vents	-	-	-	-
A129 –A132	-	Nitrogen plant column liquid dump vents	-	-	-	-
A133 –A134	-	Nitrogen plant liquid nitrogen storage vents	-	-	-	-
A135 –A136	-	LNG import analyser – gas chromatograph sample gas vents	-	-	-	-
A137 –A138	-	LNG import analyser – sample pump exhaust vents	-	-	-	-
A139	-	LNG import analyser vacuum educator vent	-	-	-	-
A140 –A141		LNG Export analysers - LNG C6+ Chromatograph Analysers – gas chromatograph sample gas vents	-	-	-	-
A142 –A143		LNG Export analysers - LNG Sulphur Chromatograph analysers chromatograph-sample gas vents	-	-	-	-

**Table S3.1 Point source emissions to air – emission limits and monitoring requirements**

Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method (unless as otherwise agreed in writing with the NRW)
A144 –A145		LNG Export analysers - - LNG Sulphur Chromatograph analysers chromatograph- Exhaust	-	-	-	-

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

Emission point ref. & location <sup>1</sup>	Parameter	Source	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method (unless as otherwise agreed in writing with the NRW)
W1 on site plan in schedule 7 (or as agreed with NRW)	-	Site drainage (surface and ground- water	-	-	-	-
W1a site drainage from LNG on site plan in schedule 7 (or as agreed with NRW)	pH	Site drainage	6-9	Maximum	Daily	BS ISO 10523
	Turbidity		-	-		BS EN ISO 7027
	Oil and grease		None visible	Spot		Visual check
	TOC		-	Spot	Weekly	BS EN 1484
	List 2 metals (copper, zinc and iron only)		-	Maximum	Monthly	APHA 3120B
W2 on site plan in schedule 7	Flow	Process effluents	3500 m <sup>3</sup> per day	24 hour period aligned with gas day	Continuous	Flow meter
			164 m <sup>3</sup> per hour	Maximum		
	pH		6-9	Daily Maximum		BS ISO 10523
	Nitrates as N		50 mg/l	Spot	Daily	APHA 4500-NO3-B: 2011
			100 kg N/day			

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

Emission point ref. & location <sup>1</sup>	Parameter	Source	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method (unless as otherwise agreed in writing with the NRW)
			50 kg N/day annual mean	Annual average		
	Oil and Grease		None visible	Spot	Daily	Visual check
	Total Residual Oxidant (As Total Free Chlorine) Limit = 0.1		0.1 mg/l	Spot	Monthly	Hach DPD Chlorine test kit for Total Free Chlorine
	Biological Oxygen Demand (BOD)		-	Spot	Monthly	HMSO BOD5 II 1988
	Temperature		30 °C	Daily Maximum	Continuous	Standard thermocouple

Note 1: The limits set in Table S3.2a of the permit EPR/XP3538LD, issued on 14/10/2015, shall apply until the permit EPR/XP3536NS granted to South Hook CHP Limited on 21/05/2015 has received written approval for the commissioning plan by NRW and implementation of the approved commissioning plan by South Hook CHP Limited. The requirements of Table S3.2b shall then apply from the implementation of the approved commissioning plan by South Hook CHP Limited.

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

Emission point ref. & location <sup>2</sup>	Parameter	Source	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method (unless as otherwise agreed in writing with the NRW)
W1 on site plan in schedule 7 (or as agreed with NRW)	-	Site drainage (surface and ground-water)	-	-	-	-
W1b Site drainage from LNG on site plan in schedule 7 (or as agreed with NRW)	pH	Site drainage	6-9	Maximum	Daily	BS ISO 10523
	Turbidity		-			BS EN ISO 7027
	Oil and grease		None visible	Spot		Visual check
	TOC		-	Spot	Weekly	BS EN 1484
	List 2 metals (copper, zinc and iron only)		-	Maximum	Monthly	APHA 3120B
W1c Interceptor on site plan in schedule 7 (or as agreed with NRW)	-	Site drainage	-	-	-	-
W2 on site plan in schedule 7	Flow	Process effluents	3100 m <sup>3</sup> per day	24 hour period aligned with gas day	Continuous	Flow meter
			144 m <sup>3</sup> per hour	Maximum		
	pH		6-9	Continuous		BS ISO 10523
	Nitrates as N		50 mg/l	Spot	Monthly	APHA 4500-NO3-B: 2011
			45 kg N/day annual mean	Annual average		
	Oil and Grease		None visible	Spot	Daily	Visual check
	Total Residual Oxidant (As Total Free Chlorine)		0.1 mg/l	Spot	Monthly	Hach DPD Chlorine test kit for Total Free Chlorine
	Biological Oxygen Demand (BOD)		-	Spot	Monthly	HMSO BOD5 II 1988
	Temperature		30 °C	Maximum	Continuous	Standard thermocouple

Note 2: The limits set in Table S3.2b of the permit EPR/XP3538LD, issued on 14/10/2015, shall only apply from the implementation of the approved commissioning plan for the permit EPR/XP3536NS granted to South Hook CHP Limited on 21/05/2015.

**Table S3.3 Process monitoring requirements**

<b>Emission point reference or source or description of point of measurement</b>	<b>Parameter</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>	<b>Other specifications</b>
Natural gas consumption	MWh	Continuous	Flow meter	-
Operating hours – LNG only	Hours	Continuous	-	-
Operating hours – integrated mode	Hours	Continuous	-	-
Electricity from the CHP Plant	MWh	Continuous	-	-
Heat received via CHP	MWh	Continuous	Temperature and flow	-
Natural gas supplied to South Hook CHP	MWh	Continuous	-	-

## Schedule 4 – Reporting

**Table S4.1 Reporting of monitoring data**

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air	A1 – A8	Every 12 months	1 <sup>st</sup> January
Parameters as required by condition 3.5.1.	A11 – A17		
Emissions to water	W1, W2	Every 6 months	1 <sup>st</sup> January, 1 <sup>st</sup> July
Parameters as required by condition 3.5.1			

**Table S4.2: Annual production**

Parameter	Units
Natural Gas produced	Tonnes

**Table S4.3 Performance parameters**

Parameter	Frequency of assessment	Units
Water usage	Annually	m <sup>3</sup>
Gas usage	Annually	MWh
Energy usage	Annually	MWh

**Table S4.4 Reporting forms**

Media/parameter	Reporting format	Date of form
Air	Form air 1 or other form as agreed in writing by Natural Resources Wales	DD/MM/YY
Water	Form water 1 or other form as agreed in writing by Natural Resources Wales	DD/MM/YY
Water usage	Form water usage 1 or other form as agreed in writing by Natural Resources Wales	DD/MM/YY
Total energy usage	Form energy 1 or other form as agreed in writing by Natural Resources Wales	DD/MM/YY
Other performance indicators	Form performance 1 or other form as agreed in writing by Natural Resources Wales	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	

<b>(a) Notification requirements for any activity that gives rise to an incident or accident which significantly affects or may significantly affect the environment</b>	
<b>To be notified immediately</b>	
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>(b) Notification requirements for the breach of a permit condition</b>	
<b>To be notified immediately</b>	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

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

<b>(c) In the event 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:</b>	
<b>To be notified immediately</b>	
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.	

<b>Name*</b>	
<b>Post</b>	
<b>Signature</b>	
<b>Date</b>	

\* authorised to sign on behalf of the operator

## Schedule 6 - Interpretation

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

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

*“authorised officer”* means any person authorised by Natural Resources Wales 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.

*“calendar monthly mean”* means the value across a calendar month of all validated hourly means, aligned to gas days.

*“CEN”* means Comité Européen de Normalisation

*“Combustion Technical Guidance Note”* means IPPC Sector Guidance Note Combustion Activities, version 2.03 dated 27<sup>th</sup> July 2005 published by Environment Agency.

*“day”* means a 24 hour period aligned to gas days or as agreed with Natural Resources Wales.

*“DLN”* means dry, low NO<sub>x</sub> burners.

*“emissions to land”* includes emissions to groundwater.

*“EP Regulations”* means The Environmental Permitting (England and Wales) Regulations SI 2010 No.675 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

*“Gas day”* is the daily period over which gas transmission operators work as defined by the Capacity Allocation Mechanism (CAM) Network code.

*“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

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

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

*“ncv”* means net calorific value.

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

*“quarter”* means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October, aligned to gas days.

*“SI”* means site inspector

*“year”* means calendar year ending 31 December, aligned to gas days

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

- (a) 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
- (b) in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

## Schedule 7 – Site plan



END OF PERMIT