



SOUTH HOOK
LNG TERMINAL COMPANY LTD

Mr Mark Broom
Technical Specialist Industry Regulation
Natural Resources Wales (NRW)
Plas Gwendraeth
Heol Parc Mawr
Cross Hands
Carmarthenshire
SA14 6RE

Our Ref: SHLNG-TS-ENV-C-564

Your Ref: EPR/XP3538LD

Date: 24 January 2019

Dear Mr Broom,

Operator: South Hook LNG Terminal Company LTD.

IED Environmental Permit Number EPR/ XP3538LD

Condition 4.2.2 – Report(s) on the Performance of the Activities Over the Previous Year 2018

Condition 4.2.3 – Report(s) of the Permit Monitoring and Assessments

Please find enclosed the report(s) on the performance of the permitted activities over the previous year 2018; and report(s) of the permit monitoring and assessments undertaken for 2018 and the period Q3 & Q4 2018 from 1 July 2018 to 31 December 2018.

Please be advised that during the period, the Terminal operated for extended periods at low, and sometimes minimum, send out, which were associated with variable and in some cases elevated BOD emissions in the SCV produced waters and CO in SCV stack emissions. However, in accordance with maintaining safe reliable (compliant) operations, the mass flows were also reduced, with no significant adverse effect on the environment.

In addition, to support safe operations at minimum/low send outs, the SCVs fitted with continuous emission monitoring systems (CEMS) for NOx have been unavailable, as follows:

- Minimum Send Out and to allow internal inspections and essential maintenance: SCV1H did not operate in 2018
- Minimum Send Out and to allow internal inspections and essential maintenance: from 1 January to on or about 7.11.2018 for SCV2A.

As per standard agreed procedures, during these periods we have endeavoured to monitor NOx discontinuously (DCM) every 12 hour shift on one SCV per train with inactive CEMS, and this is scheduled to continue until the SCVs with CEMS are returned to service.

Please do not hesitate to contact me should you have any queries, or I can be of further assistance.

Yours sincerely

Dr Shane Evans

Senior Environmental Engineer.

SBH 24-01-19
EPR 24/01/19

Attachments:

- Form Number: Air / 14th October 2015
- Form Number: Water1a / 14th October 2015
- Form Number: Water1b / 14th October 2015
- Form Number: WaterUsage1 / 14th October 2015
- Form Number: Energy1 / 14th October 2015
- Form Number: Performance1 / 14th October 2015
- Table S4.2: Annual Production 2018

cc. *Mr Zoltan Hazos, Technical Services Manager.*

B/E 23/1/2019

BFH 24-01-19

B/E 24/01/19

Permit Number: EPR/XP3538LD Operator: South Hook LNG Terminal Company LTD.

Facility: South Hook LNG Terminal **Form Number: Air / 14th October 2015**

Reporting of emissions to air for the period from 01/1/2018 to 31/12/2018

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result ^[1]	Test Method ^[2]	Sample Date and Times ^[3]	Uncertainty ^[4]
A8	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	107 mg/Nm ³	Continuous	na	BS EN 14181 ISO 10849	SCV A8 (1H) did not operate in 2018	na
A8	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	107 mg/Nm ³	1 hour sample	na	BS EN 14792	SCV A8 (1H) did not operate in 2018	na
A8	Carbon monoxide	-	1 hour sample	na	BS EN 15058	SCV A8 (1H) did not operate in 2018	na
A11	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	107 mg/Nm ³	Continuous	63.5	BS EN 14181 ISO 10849	04.11.2018 100% data capture	10.4%
A11	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	107 mg/Nm ³	1 hour sample	55.2	BS EN 14792	20.11.2018 @11:00	10.6
A11	Carbon monoxide	-	1 hour sample	718	BS EN 15058	14.08.2018 @12:00	72

[1] The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum - maximum' measured values.

[2] Where an internationally recognised standard test method is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example agreed with Natural Resources Wales is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.

[3] For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements the percentage of the process operating time covered by the result is given.

[4] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

Signed B. Evans Date 23/1/2019
(Authorised to sign as representative of Operator)

2PH 2401-19 col-2401/19

na = not applicable

Permit Number: EPR/XP3538LD Operator: South Hook LNG Terminal Company LTD.

Facility: South Hook LNG Terminal **Form Number: Water1a / 14th October 2015**

Reporting of emissions to water (other than to sewer) and land for the period from 01/07/2018 to 31/12/2018 for Table S3.2a

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result ^[1]	Test Method ^[2]	Sample Date and Times ^[3]	Uncertainty ^[4]
W1a	pH	6-9	Daily minimum - maximum	7.0 7.6	BS ISO 10523	16 Jul 2018 24 Nov 2018	4.11%
W1a	Turbidity	-	Daily maximum	39	BS EN ISO 7027	05-Dec-18	44.51%
W1a	Oil and grease	None visible	Daily spot	None visible	Visual check	na	na
W1a	TOC	-	Weekly spot	6.4	BS EN 1484	16-Jul-18	12.94%
W1a	List 2 metals (copper, zinc and iron only)	-	Monthly maximum	<2 µg/l	APHA 3120B	5 Jul, 9 Aug, 6 Sep, 14 Oct, 15 Nov, 6 Dec 2018	3.25%
	Copper	-				06-Dec-18	
	Zinc	-				06-Sep-18	
	Iron	-				06-Sep-18	
W2	Flow	3500 m ³ per day	Continuous	485.01	Flow meter	05/12/2018 100% data capture	0.56%
W2	Flow	164 m ³ per hr	Continuous	77.07	Flow meter	11/07/2018 100% data capture	0.56%
W2	pH	6-9	Daily minimum - maximum	6.26 8.66	BS ISO 10523	13 & 14 Aug 2018 17 Aug 2018 100% data capture	0.13 pH units
W2	Nitrates as N	50 mg/l	Daily maximum	19	APHA 4500-NO3-B: 2011	08-Sep-18	2.49%
W2	Nitrates as N	100 kg N/day	Daily maximum	4.48	APHA 4500-NO3-B: 2011	11-Jul-18	2.55%
W2	Nitrates as N	50 kg N/day annual mean	Annual average	1.07	APHA 4500-NO3-B: 2011	na	2.55%
W2	Oil and grease	None visible	Daily spot	None Visible	Visual check	na	na
W2	Total Residual Oxidant (As Total Free Chlorine) Limit = 0.1	0.1 mg/l	Monthly spot	<0.02 mg/l	Hach DPD Chlorine test kit for Total Free Chlorine	na	20.29%
W2	Biological Oxygen Demand (BOD)	-	Monthly spot	74 mg/l	HMSO BOD5 II 1988	15-Nov-18	48.08%
W2	Temperature	30 °C	Daily maximum	22.98	Standard thermocouple	09/07/2018 100% data capture	0.20%

[1] The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum - maximum' measured values.

[2] Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with Natural Resources Wales is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.

[3] For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements the percentage of the process operating time covered by the result is given.

[4] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

Signed Blewan
(Authorised to sign as representative of Operator)

Date 23/11/2019

2-FH 24-01-19
na = not applicable

COL 24/01/19

Permit Number: EPR/XP3538LD Operator: South Hook LNG Terminal Company LTD.

Facility: South Hook LNG Terminal **Form Number: Water1b / 14th October 2015**

Reporting of emissions to water (other than to sewer) and land for the period from 01/07/2018 to 31/12/2018 for Table S3.2b

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result ^[1]	Test Method ^[2]	Sample Date and Times ^[3]	Uncertainty ^[4]
W1b	pH	6-9	Daily maximum	na	BS ISO 10523	na	4.11%
W1b	Turbidity	-	Daily maximum	na	BS EN ISO 7027	na	44.51%
W1b	Oil and grease	None visible	Daily spot	na	Visual check	na	na
W1b	TOC	-	Weekly spot	na	BS EN 1484	na	12.94%
W1b	List 2 metals (copper, zinc and iron only)	-	Monthly maximum	na	APHA 3120B	na	
W2	Flow	3100 m ³ per day	Continuous	na	Flow meter	na % data capture	0.56%
W2	Flow	144 m ³ per hr	Continuous	na	Flow meter	na % data capture	0.56%
W2	pH	6-9	Daily maximum	na	BS ISO 10523	na % data capture	0.13 pH units
W2	Nitrates as N	50 mg/l	Daily maximum	na	APHA 4500-NO3-B: 2011	na	2.49%
W2	Nitrates as N	45 kg N/day	Annual average	na	APHA 4500-NO3-B: 2011	na	2.55%
W2	Oil and grease	None visible	Daily spot	na	Visual check	na	na
W2	Total Residual Oxidant (As Total Free Chlorine) Limit = 0.1	0.1 mg/l	Monthly spot	na	Hach DPD Chlorine test kit for Total Free Chlorine	na	20.29%
W2	Biological Oxygen Demand (BOD)	-	Monthly spot	na	HMSO BOD5 II 1988	na	48.08%
W2	Temperature	30 °C	Daily maximum	na	Standard thermocouple	na % data capture	0.20%

[1] The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum – maximum' measured values.

[2] Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with Natural Resources Wales is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.

[3] For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements the percentage of the process operating time covered by the result is given.

[4] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

Signed Blewan Date 23/1/2019
 (Authorised to sign as representative of Operator)
ZFH 29-01-19
 na = not applicable ced 24/01/19

Permit Number: EPR/XP3538LD Operator: South Hook LNG Terminal Company LTD.

Facility: South Hook LNG Terminal Form Number: WaterUsage1 / 14th October 2015

Reporting of Water Usage for the year 2018

Water Source	Usage (m ³ /year)	Specific Usage (m ³ /unit output)
Mains water	109,294	0.0609
Site borehole	0	0
River abstraction	0	0
TOTAL WATER USAGE	109,294	

Operator's comments :

m3/unit output = m3/ tonnes of gas production

Signed Date 23/1/2019
(authorised to sign as representative of Operator)
24th 24-01-19
EOL 24/01/19

Permit Number: EPR/XP3538LD Operator: South Hook LNG Terminal Company LTD.

Facility: South Hook LNG Terminal **Form Number: Energy1 / 14th October 2015**

Reporting of Energy Usage for the year 2018

Energy Source	Energy Usage		
	Quantity	Primary Energy (MWh)	Specific Usage (MWh/unit output)
Electricity *	MWh	207,293	0.115487
Natural Gas	MWh	296,664	0.165277
TOTAL	-	503,958	

* Conversion factor for delivered electricity to primary energy = 2.4

Operator's comments :

Electricity * MWh/unit output = MWh/ tonnes of gas production
Natural Gas MWh/unit output = MWh/ tonnes of gas production

Signed B. Ewan Date 23/1/2019
(Authorised to sign as representative of Operator)

ZFH 24-01-19

CR 24/01/19

Permit Number: EPR/XP3538LD Operator: South Hook LNG Terminal Company LTD.

Facility: South Hook LNG Terminal **Form Number: Performance1 / 14th October 2015**

**Reporting of other performance indicators for the period 01/1/2018 to 31/12/2018
in accordance with Table S3.3 Process monitoring requirements**

Parameter	Units	
Natural gas consumption	MWh	296,664
Operating hours – LNG only	Hours	8,720.5
Operating hours – integrated mode	Hours	na
Electricity from the CHP Plant	MWh	na
Heat received via CHP	MWh	na
Natural gas supplied to South Hook CHP	MWh	na

Operator's comments :

na = not applicable

Signed B/Ewan
(Authorised to sign as representative of Operator)

Date 23/1/2019

ZFH 24-01-19
ER 24/01/19

Permit Number: EPR/XP3538LD Operator: South Hook LNG Terminal Company LTD.

Facility: South Hook LNG Terminal **Table S4.2: Annual Production 2018**

Table S4.2: Annual Production 2018	
Natural Gas produced	1,794,952 tonnes

Operator's comments :

Signed B. Ewan
(Authorised to sign as representative of Operator)

Date 23/1/2019

ZFM 24-01-19
CWR 24/01/19