

Mr Mark Broom
Technical Specialist Pollution Prevention & Control (PPC)
Natural Resources Wales (NRW)
Maes Newydd
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Neath Port Talbot
SA10 6JQ

Our Ref: SHLNG-TS-ENV-C-547

Your Ref: EPR/XP3538LD

Date: 25 January 2018

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 2017
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 2017; and report(s) of the permit monitoring and assessments undertaken for 2017 and the period Q3 & Q4 2017 from 1 July 2017 to 31 December 2017.

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: between 24 January 2017 and 1 March 2017, and
- Minimum Send Out and to allow statutory internal inspections and essential maintenance: from 4 May for SCV2A and 10 May for SCV1H.

As per standard agreed procedures, during these periods NOx has been monitored 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.

Yours sincerely



Dr Shane Evans
Senior Environmental Engineer.



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 2017

cc. *Mr Abdulla Al-Ghadid, Technical Services Manager.*



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 01/1/2017 to 31/12/2017

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	54.3	BS EN 14181 ISO 10849	10.05.2017 99.87% data capture	10.4%
A8	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	107 mg/Nm ³	1 hour sample	51.6	BS EN 14792	09.05.2017 @14:00	7.3
A8	Carbon monoxide	-	1 hour sample	89.8	BS EN 15058	09.05.2017 @14:00	6.5
A11	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	107 mg/Nm ³	Continuous	73.0	BS EN 14181 ISO 10849	09.03.2017 99.90% data capture	10.4%
A11	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	107 mg/Nm ³	1 hour sample	50.0	BS EN 14792	09.03.2017 @11:00	8.1
A11	Carbon monoxide	-	1 hour sample	232	BS EN 15058	09.03.2017 @11:00	18

[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 B. Evans Date 25/11/2018
(Authorised to sign as representative of Operator)

Red

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 01/07/2017 to 30/12/2017 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	7.2 7.9	BS ISO 10523	3 Jul 2017 22, 28 Oct, 5, 8, 11, 12, 17 Nov 2017	4.11%
W1a	Turbidity	-	Daily maximum	14	BS EN ISO 7027	14-Oct-17	44.51%
W1a	Oil and grease	None visible	Daily spot	None visible	Visual check	na	na
W1a	TOC	-	Weekly spot	11.6	BS EN 1484	09-Oct-17	12.94%
W1a	List 2 metals (copper, zinc and iron only)	-	Monthly maximum		APHA 3120B		3.25%
	Copper	-		<2 µg/l		13 July, 17 Aug, 7 Sep, 12 Oct, 16 Nov, 7 Dec 2017	
	Zinc	-		10 µg/l		07-Dec-17	
	Iron	-		155 µg/l		07-Dec-17	
W2	Flow	3500 m ³ per day	Continuous	534.98	Flow meter	02/08/2017 100% data capture	0.56%
W2	Flow	164 m ³ per hr	Continuous	88.13	Flow meter	01/10/2017 100% data capture	0.56%
W2	pH	6-9	Daily minimum - maximum	6.16 8.73	BS ISO 10523	20 Jul 2017 16 Jul 2017 100% data capture	0.13 pH units
W2	Nitrates as N	50 mg/l	Daily maximum	12	APHA 4500-NO3-B: 2011	5, 6, 24 Dec 2017	2.49%
W2	Nitrates as N	100 kg N/day	Daily maximum	4.28	APHA 4500-NO3-B: 2011	02-Aug-17	2.55%
W2	Nitrates as N	50 kg N/day annual mean	Annual average	2.10	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	21.95%
W2	Biological Oxygen Demand (BOD)	-	Monthly spot	75 mg/l	HMSO BOD5 II 1988	07-Dec-17	48.09%
W2	Temperature	30 °C	Daily maximum	25.78	Standard thermocouple	05/08/2017 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 B/Ewan Date 25/1/2018
(Authorised to sign as representative of Operator)

na = not applicable

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 01/07/2017 to 31/12/2017 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	06-Sep	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	21.95%
W2	Biological Oxygen Demand (BOD)	-	Monthly spot	na	HMSO BOD5 II 1988	na	48.09%
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 B/Ewan Date 25/11/2018
(Authorised to sign as representative of Operator)

na = not applicable

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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 2017

Water Source	Usage (m ³ /year)	Specific Usage (m ³ /unit output)
Mains water	97,930	0.0283
Site borehole	0	0
River abstraction	0	0
TOTAL WATER USAGE	97,930	0.0283

Operator's comments :

m3/unit output = m3/ tonnes of gas production

Signed B/6/2018 Date 25/1/2018
(authorised to sign as representative of Operator)

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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 2017

Energy Source	Energy Usage		
	Quantity	Primary Energy (MWh)	Specific Usage (MWh/unit output)
Electricity *	MWh	266,445	0.077123
Natural Gas	MWh	603,631	0.174721
TOTAL	-	870,076	

* 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 Blewan
(Authorised to sign as representative of Operator)

Date 25/1/2018

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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 01/1/2017 to 31/12/2017
in accordance with Table S3.3 Process monitoring requirements**

Parameter	Units	
Natural gas consumption	MWh	603,631
Operating hours – LNG only	Hours	8755
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 :

Signed Blewan Date 26/1/2018
(Authorised to sign as representative of Operator)

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na = not applicable

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

Facility: South Hook LNG Terminal **Table S4.2: Annual Production 2017**

Table S4.2: Annual Production 2015	
Natural Gas produced	3,454,823 tonnes
Operator's comments :	

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

Date 25/11/2018

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