APPLICATION FOR PARTIAL SURRENDER OF ENVIRONMENTAL PERMIT EPR/XP3538LD

On Behalf of South Hook LNG Terminal Company Limited

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3
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Document status

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Prepared for:

South Hook LNG Terminal Company Limited

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1 INTRODUCTION

1.1.1 The South Hook LNG Terminal permitted installation is operated by the South Hook LNG Terminal Company Limited, in compliance with environmental permit reference EPR/XP3538LD. The LNG (Liquified natural Gas) Terminal receives stores and vaporises LNG to form natural gas for send out to the National Transmission System (NTS) operated by the National Grid (NG).

1.1.2 Following delivery, LNG is pumped from LNG ships moored at the jetty site into tanks where it is stored until it is re-gasified to meet specific grid demand. The LNG is converted back into natural gas through a process known as regasification.

1.1.3 Re-gasification of the LNG is currently achieved by operation of up to 15 No. submerged combustion vaporisers (SCVs), the number of SCV units operating at any given time being dependent on gas send-out nominations, operational and maintenance constraints. An additional new submerged combustion vaporiser (SCV) and a new high pressure send out (HPSO) pump will be installed in 2023. The new equipment will be operated in full accordance with the varied and consolidated permit issued on the 15th April 2021 (reference EPR/XP3538LD/V004, Appendix B).

1.1.4 Each SCV comprises a stainless-steel tube bundle immersed in a warm water bath. The LNG flows through the tube bundle and is heated and re-gasified by heat transferred from the water bath. The warm water temperature is maintained by supplying heat to the water in the SCVs through direct contact with hot gases resulting from the combustion of a small portion of the re-gasified natural gas produced at the LNG Terminal.

1.1.5 The natural gas produced, supplies the National Transmission System (a network of gas pipelines that transports gas throughout the UK). The South Hook LNG Terminal has a total processing capacity of 15.6 million tonnes per annum, which is equivalent to around 20% of the current UK natural gas demand. In Quarter 1 2022, SHLNG has supplied 52.5% of the UK's LNG market share. SHLNG is also classified as a key National Infrastructure installation

1.1.6 This document and its supporting appendices form the application to surrender non-operational areas of environmental permit reference EPR/XP3538LD.

1.2 Background

1.2.1 RPS Planning and Development Ltd (RPS) has been appointed by the South Hook LNG Terminal Company Limited to prepare a permit application for the partial surrender of land which falls within the permitted area of the LNG (Liquified natural Gas) Terminal facility permit (EPR/XP3538LD) located near Herbrandston, in the county of Pembrokeshire. This surrender report forms part of that surrender application along with the supporting information.

1.2.2 South Hook LNG Terminal Company Limited (the operator) has been carrying out activities at the facility since July 2004.

1.2.3 This proposed partial surrender does not change the permitted activity or require any additional activities to be permitted. Based on the requirements of the partial surrender, it has been assessed that this will be a low risk partial surrender as there will be no requirement for any technical assessment by Natural Resources Wales (NRW) of any of the proposed changes to the site.

1.2.4 The areas identified for surrender are non-operational areas where activities which could have caused potential contamination have not taken place. These areas remain undisturbed and grassed over.

1.2.5 A Site Condition Report was produced in 2018 to support the requirements of the Industrial Emissions Directive (IED) the site and to provide a record of baseline conditions. The environmental records and results of ongoing monitoring throughout the operational stage of the site have been compared against this baseline report to ascertain the condition of the land at present and are detailed further in the Site Surrender Condition Report (SCR), Appendix C.

1.2.6 This application is for a partial surrender of the Environmental Permit for the facility based on the following information:

- The facility is designed and operated to meet modern containment standards;
- The facility is operated under an ISO14001 Environmental Management System (EMS), see Appendix B of SCR;
- The EMS includes policies and procedures for all potentially harmful activities on site;
- Regular internal audits are carried out as part of the EMS;
- All hazardous substances are provided with appropriate containment measures within buildings; see Appendix C of SCR;
- Regular monitoring of surface water discharges to the local watercourse, discharges to sewer and emissions to air were conducted throughout the operational stage of activities;
- Natural Resources Wales (NRW) non-compliances / enforcement actions at the facility during have been risk assessed at partial surrender; see Appendix D of SCR;
- Raw materials inventories and environmental records (including incident records) on site show no evidence of loss of raw materials at the site during the operation of the permit.

1.2.7 This partial surrender report details the condition of the respective areas to be surrendered.

1.3 Site Location

1.3.1 South Hook LNG terminal is located at Dale Road, Herbrandston, Milford Haven, Pembrokeshire, SA73 3SU. The national grid reference for the installation is SM 8733 0638.

1.3.2 The site is centred at National Grid Reference SM 875 064 and covers a total permitted area of approximately 64.41 Hectares (Ha). The site is located on two flat-topped hills with an elevation of approximately 56 metres above Ordnance Datum (m AOD) that are bisected by an approximately north-south oriented valley that historically discharged to the Milford Haven Waterway in the south.

1.3.3 The site elevation changes from the high flat-topped hills at approximately 56 m AOD through the northern and eastern areas of the site, to c. 5 m AOD in the valley bottom at its confluence with the sea at Little Wick Bay in the south. The valley marks the course of a former natural watercourse at this locality that now follows a highly modified channel and valley. The valley contains the “skim pond” at its southern end, an impounded water body that discharges to the sea via a concrete pipe situated immediately down stream of weir situated at the southern end of the skim pond.

1.4 Operator Details

1.4.1 The applicant and operator of the site is South Hook LNG Terminal Company Limited, registered on Companies House as company number 04982132 and whose registered office is South Hook LNG Terminal Company Ltd, Dale Road, Herbrandston, Milford Haven, Pembrokeshire, Wales, SA73 3SU.

1.5 Details of Partial Site Surrender

1.5.1 This section describes the details of the proposed partial surrender of the South Hook LNG Terminal Company Limited installation.

1.5.2 The SHLNG Terminal is located on a former Esso Oil Refinery site which is understood to have been constructed in the late 1950s and subsequently expanded in the 1970s. The Oil Refinery was closed in 1983 and fully decommissioned by 1990. The site has not been an active refinery for approx. 38 years. Esso applied for a PPC permit for the proposed LNG facility, which was

determined in 2003 and in 2006 this permit was transferred to South Hook LNG Terminal Company Limited.

1.5.3 In 2004 South Hook LNG Terminal Company Ltd commissioned a 'Site Remediation Plan' for the development of the site. Following approval by the regulator, the site preparation works, including remediation works, were commenced. Site remediation works were undertaken in "Contaminant Affected Areas" (CAAs) between 2004 and 2005 in advance of construction, with the SHLNG Terminal becoming fully operational in 2009. The site history is summarised in Table 2.1.

1.5.4 Soil, groundwater and surface water monitoring has been undertaken extensively across the site under SHLNG Environmental Permit ownership with the aim to monitor remediation works efficacy, to monitor natural attenuation of residual hydrocarbon contamination and to monitor potential impacts of permitted activities. The remediation and construction activities were reported in June 2009 by WSPR in "South Hook LNG Groundwater Monitoring and Trend Analysis Report" (Reference 13010481/10rev2) with the aim to identify potential contaminant-related liabilities or additional data requirements and to provide recommendations for future monitoring action. This report identified all groundwater monitoring locations were showing decreasing trend with the exception of BH41a and BH42a.

Table 1.1 Summary of Key Land-use Phases on the SHLNG Terminal Site (from RPS, 2018)

Date	Phase
Pre-1983	Refinery Operation Phase
1983 – 1986	Refinery Decommissioning Phase
1986 – 1993	No known site activities
1993 – 2003	Post Closure Site Characterisation Works
2004 – 2005	SHLNG Site Remediation & Site Preparation Phase
2005 – 2010	SHLNG Site Construction Phase
2009 to date	SHLNG Operational Phase

1.5.5 The updated Site Condition Report (SCR) / Baseline Report, previously requested by the regulator via a permit improvement condition, to address IED obligations, has identified that the site presents low risk to controlled waters. Residual hydrocarbon contamination was reported to be principally in decline from 2006 remediation phase to 2016 in most part of the site with Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) concentration below 0.5 mg/l.

1.5.6 Three known (CAAs) were still showing hydrocarbon concentrations above detection limits as currently monitored in groundwater at BH50, BH41A and BH42A. The three CAAs are described in the RPS 2018 report as:

- Area 1A/1B/1C –Catalyst Disposal Area (BH50)
- Area 4A – Sludge disposal Pit (BH41A)
- Area 21A – Skim Pond (BH42A)

1.5.7 With the exception of these three areas, all other monitoring locations have shown concentrations close to detection limit and indicative of trivial exceedances, i.e. with no environmental significance.

1.5.8 CAAs are not located within any areas identified for surrender within this application. Area proposed for surrender have not been used for any operational activities, see Opra profile spreadsheet attached.

1.5.9 The extensive pollution control measures and environmental management protocols in place for at the site and are presented in the "Updated Site Condition Report (SCR) / Baseline Report under the Industrial Emissions Directive (IED) for the South Hook LNG Terminal Permitted Installation" report (RPS, May 2018) previously provided to the regulator.

1.6 Scope of Partial Site Surrender Report

1.6.1 This report will cover the following:

- Guidance and legislation of low risk surrender criteria
- Regulatory history of the facility
- The areas of the installation to be surrendered
- The current use of the surrendered area
- Operational history of the surrendered area
- Environmental management of the installation
- Any reported accidents or spills

2 GUIDANCE AND LEGISLATION

2.1.1 The surrender test as stated in Regulatory Guidance Note 9 is:

The regulator must accept an application to surrender an environmental permit in whole or part under regulation 25(2) if it is satisfied that the necessary measures have been taken –

(c) to avoid a pollution risk resulting from the operation of the regulated facility; and

(d) to return the site of the regulated facility to a satisfactory state, having regard to the state of the site before the facility was put into operation.

2.1.2 Horizontal Guidance Note 5 ("H5") states that:

The surrender part of the SCR "…must provide the evidence necessary to convince us your site does not pose a pollution risk and is in a satisfactory state".

and

"…where activities could in principle pollute land or groundwater but the operator can show through waste acceptance records (where applicable) and pollution control measures that the legal test set out above has been met. A report is required but not one involving intrusive monitoring data. All the non-radioactive substances facilities covered here may qualify, depending on circumstances."

2.1.3 This partial surrender report, to be read in conjunction with the SCR, will detail the current state of the site is satisfactory, by demonstrating:

- The location and design of the regulated facility is such that deterioration of land or groundwater would be unlikely;
- No operational activities or storage of potentially polluting substances have taken place on the areas of the proposed partial surrender;
- The environmental management systems and procedures that were in place for the installation that protected the land and groundwater of the areas;
- Regulatory history of the site shows that there have not been incidents / non-compliances at the site which have resulted in pollution

2.2 Regulatory History

2.2.1 In September 2006 South Hook LNG Terminal Company Limited became the holder of the permit to operate a Part A1 installation (EPR/XP3538LD) under the Pollution Prevention and Control (PPC) Regulations 2000.

2.2.2 There have been several variations to the permit since 2006. These include changing the engineering design of the terminal in 2008, updating the permit to modern conditions in 2015 and the addition of one new submerged combustion vaporiser (SCV) in 2021. The permit has been placed in Appendix B.

Compliance Assessment Reports

2.2.3 A review of the available Compliance Assessment Reports (CAR's) received from NRW since 2016 has been undertaken. No non-compliances have been recorded. The CARs have been collated and placed in Appendix D of the SCR.

3 NATURE OF THE SURRENDER

3.1 Overview

3.1.1 South Hook LNG Terminal Company Limited was issued Environmental Permit EPR/XP3538LD for the operation of the installation in 2004.

3.1.2 This report supports the partial surrender of the environmental permit. Namely, the removal of areas of non-operational land from the current permitted area.

3.2 Area to be surrendered

3.2.1 The current installation boundary is shown in Schedule 7 of the environmental permit, see Appendix B.

3.2.2 The permit will be partially surrendered. All areas edged in red on Drawing JAS6495_figure_2_boundary_Rev6JP-A4_layout will be surrendered. A copy of this plan has been placed in Appendix F of the SCR. Images of these areas has been placed in Appendix H of the SCR.

4 BASELINE SITE CONDITIONS

4.1.1 Baseline site conditions are discussed in detail in the Site Condition Report (RPS, 2022).

5 OPERATIONAL SITE CONDITIONS

5.1.1 Operational site conditions and measures taken to protect the land are discussed in detail in the Site Condition Report (RPS, 2022).

6 OPERATIONAL CONTROLS

6.1.1 Operational controls are discussed in detail in the Site Condition Report (RPS, 2022).

7 SUMMARY AND CONCLUSIONS

7.1 Summary of evidence

7.1.1 South Hook LNG Terminal Company Limited is applying to partially surrender their permit EPR/XP3538LD to reduce the permitted area.

7.1.2 There are no changes to the permitted activities or directly associated activities as a result of the partial surrender.

7.1.3 A partial permit surrender is being sought based on the information contained in this report and the accompanying Site Condition Report (2022) summarised below.

7.1.4 The installation operational areas identified for surrender have not been subject to any operational activities and therefore there is a no risk for land or groundwater pollution from the operational activities.

7.1.5 The activities at South Hook LNG Terminal are not inherently polluting and very small volumes of oils are stored within the workshop for maintenance requirements only. The site operational staff have performed regular inspections of bunds, hardstanding and drains around the site and records have been kept.

7.1.6 The South Hook LNG Terminal Company Limited installation is managed and operated in accordance with a written management Safety Health Environment Management System (SHEMS) 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. A copy of the SHEMS has been placed in Appendix B.

7.1.7 The Site Condition Report and investigations referred to therein and associated historical Site Condition Reports and investigations, confirm that the land has not deteriorated as a result of the activities permitted under permit EPR/XP3538LD and that the land in question is in a satisfactory condition to enable a partial surrender of those areas.

7.2 Conclusions

7.2.1 The summary of evidence demonstrates that this application for partial surrender of land is a low risk surrender.

REFERENCES

Environment Agency (2013). Regulatory Guidance Note, RGN 9: Surrender

RPS (2022). Site Condition Report (Surrender)

GLOSSARY

BAT	Best Available Techniques
BOD	Biological Oxygen Demand
CAR	Compliance Assessment Report
CCS	Compliance Classification Scheme
CCTV	Closed Circuit Television
CMMS	Computerised Maintenance Management System
CO2	Carbon Dioxide
COD	Chemical Oxygen Demand
COMAH	Control of Major Accident Hazard
DSOP	Departmental Standard Operating Procedure
EA	Environment Agency
EHS	Environmental Health and Safety
EP	Environmental Permit
EQS	Environmental Quality Standards
ERA	Environmental Risk Assessment
FV	Fermentation Vessel
IBCs	Intermediate Bulk Containers
IC	Improvement Condition
IPPC	Integrated Pollution Prevention Control
LDL	Laboratory Detection Limit
mAOD	Meters Above Ordnance Datum
PPC	Pollution Prevention Control
SCR	Site Condition Report
SVOCs	Semi Volatile Organic Compounds
TPH	Total Petroleum Hydrocarbons

Appendices

Appendix A
APPLICATION FORMS

Application for an environmental permit: Part A – About you

Fill in this part A if you are applying for a new permit, applying to change or surrender an existing permit, or want to transfer an existing permit to yourself.

Please check that this is the latest version of the form available from our website.

Please read through this form and the guidance notes that come with it. All relevant guidance documents can be found on our website.

Where you see the term 'document reference' on the form, give the document references and send the documents with the application form when you've completed it.

Contents

1 About you

Are you applying as an individual, an organisation of individuals (for example, a partnership), a company (this includes Limited Liability Partnerships) or a public body?

An individual	☐	*Go to section 2*
An organisation of individuals (for example, a partnership)	☐	*Go to section 3*
A public body (such as a local council)	☐	*Go to section 4*
A registered company or other corporate body	☒	*Go to section 5*

2 Applications from individuals

2a Please give us the following details

Title		
First name		
Last name		*Go to section 6*

3 Applications from organisations of individuals

3a Organisation details

Organisation name	
Type of organisation	
If 'Other', please specify	

3b Main representative's details

Title	
First name	

Last name

3c Second representative's details:

Title

First name

Last name

3d Other representative's details

If relevant, please provide details of all other representatives on a separate sheet and tick here to show that you have done so. ☐ *Go to section 6*

4 Applications from public bodies

4a Public body details

Public body name

Type of public body

If 'Other', please specify

4b Executive officer's details

The executive is an officer of the public body authorised to sign on your behalf.

Title

First name

Last name

Position *Go to section 6*

5 Applications from a registered company or other corporate body

5a Company details

Company name: South Hook LNG Terminal Company

Company registration number: 04982132

Date of registration: 02/12/2003

If you are applying as a corporate organisation that is now a limited company, please provide evidence of your status and tell us the reference number you have given this document with this evidence.

Document reference *Go to section 6*

6 Your address

6a Your main (registered office) address

For companies this *must* be the address on record at Companies House.

Address: Dale Road

Herbrandston

	Milford Haven
	Pembrokeshire
Postcode	SA73 3SU
Telephone - mobile	
Telephone - office	01437 782007
Email address	

If you are applying as an organisation of individuals, every partner needs to give us their details, including their title. If necessary, continue on a separate sheet and tell us the reference you have given the sheet.

Document reference	

6b UK business address *only* if different from above

Address	
Postcode	
Telephone - mobile	
Telephone - office	
Email address	

Go to section 7

7 Contact details

7a Who can we talk to about your application?

This can be someone acting as a consultant or 'agent' for you.

Title	Mr
First name	Wayne
Last name	Davies
Address	RPS Group
	260 Park Avenue
	Almondsbury

	Bristol
Postcode	BS32 4SY
Telephone - mobile	+44 7795 811244
Telephone - office	+44 1454 853 000
Email address	daviesw@rpsgroup.com

7b Who can we talk to about your operation?

Same as the application contact in 7a	☐
Title	Mr
First name	Eamon
Last name	O'Loughlin
Address	Health & Safety Officer
	South Hook LNG Terminal Company Ltd.
	Dale Road, Herbrandston
	Milford Haven, Pembrokeshire
Postcode	SA73 3SU
Telephone - mobile	07774 191089
Telephone - office	01437 782007
Email address	EOLoughlin@SouthHookLNG.com

7c Who can we talk to about your billing or invoice?

Same as the application contact in 7a	☐
Same as the operation contact in 7b	☒
Title	
First name	
Last name	
Address	

Postcode	
Telephone - mobile	
Telephone - office	
Email address	

Application for an environmental permit:

Part E2 – Surrender application (installations, waste operation, mining waste operations, medium combustion plant, specified generators and mobile plant only)

Fill in this part of the form together with part F1, if you are surrendering all or part of your permit or applying to surrender mobile plant. Please check that this is the latest version of the form available from our website. Please read through this form and the guidance notes that came with it. All relevant guidance documents can be found	on our website. Contents 1 About the permit 2 About the application 3 About the parts of the permit you want to surrender 4 Surrender (site condition) report 5 Surrendering mobile plant

1 About your permit

1a Discussions before your application

If you have had discussions with us before your application, provide the case reference or details on a separate sheet and tell us below the reference you have given the document.

Case or document reference	See supporting document, Appendix D

1b Permit number

Permit number you want to surrender?	EPR/XP3538LD

1c Type of permit

Tick below which type of permit you are applying to surrender

Mobile plant permit ☐ *Go to section 5*

A site permit ☒

1d Site details

What is the name, address and postcode of this site?

Site name	South Hook LNG Terminal
Address	Dale Road
	Herbrandston
	Milford Haven
	Pembrokeshire
Postcode	SA73 3SU

2 About the application

2a Is this a surrender application for a medium combustion plant or specified generator?

No ☒ *Go to Section 2b*

Yes ☐ *Go to Section 2f*

2b Is this a low risk surrender application? (see guidance notes on part E2)

'Low risk' includes facilities where activities have not started.

No ☐ *Go to section 2b*

Yes ☒

Please attach a copy of the evidence and give us the document reference below.

Document reference	See supporting information

2c Is this a basic surrender application? (see guidance notes on part E2)

No ☐ *Go to section 2e*

Yes ☐

Please attach a copy of the evidence and give us the document reference below.

Document reference	

2d Have we confirmed during discussions we have had with you before your application that this will be a low-risk or basic surrender?

We will not be able to process an application for 'low risk' or 'basic' surrender unless you include written evidence that your site compliance officer has confirmed you meet the relevant standards.

No ☐ We recommend you contact your site compliance officer before you submit the application.

Yes ☒ Tell us the document reference for the confirmation.

Document reference	See supporting information

2e Have there been any changes since the discussions?

No ☒

Yes ☐ We recommend you contact your site compliance officer before you submit the application.

Please send us a copy of confirmation or a letter justifying any changes you have made since pre-application discussions. Give us the reference number you have given this document.

Document reference	

2f Tick below to show whether you are applying to surrender all or part of your permit

All of permit ☐ *Go to section 4*

Part of permit ☒ *Go to section 3*

3 About the parts of the permit you want to surrender and the parts you want to keep

3a Supply a map or plan identifying the part (or parts) of the permit your application relates to

Document reference	Site plan ref Revised Site Plan - Drawing JAS6495_figure_2_boundary_Rev6JP-A4_layout Revised site boundary, Appendix F of SCR

3b Supply a map or plan identifying the part (or parts) of the permit you will be keeping (please mark the new boundary in green).

Document reference	Site plan ref Revised Site Plan - Drawing JAS6495_figure_2_boundary_Rev6JP-A4_layout Revised site boundary, Appendix F of SCR

3c Fill in Table 1 below with details of all the activities you no longer operate or plan to stop operating

Fill in a separate table for each activity you are applying to surrender. Use a separate sheet if you have a long list and send it to us with your application form. Tell us below the reference you have given the extra sheet.

Document reference	

Table 1 – Parts of the permit you want to surrender

Activity reference						
Installations only			Description of the waste facility or waste mobile plant	Description of the mining waste operation	Standard facility	Proposed operator
Schedule 1 references	Description of the activity	Directly associated activity				

3d Do you think you will need to apply to vary (change) any of the permit conditions as a result of surrendering part of your permit?

Note: If you are partially surrendering an area of land only it is unlikely that you will need to amend any conditions other than the site plan.

No ☒ *Go to section 4*

Yes ☐ Fill in the relevant parts of C0.5 and C1 to C7 of the application form, giving details of how the permit conditions will need to be changed as a result of surrendering part of the permit.

Document reference

4 Surrender (site condition) report.

4a Please provide a site report/baseline report/surrender report which describes the condition of the site, or the parts of the permit the application relates to (Not required for Medium Combustion Plant or Specified Generators).

Document reference	See supporting statement and SCR

4b Have you taken any steps on the site (or the part of the site you are surrendering) to avoid any pollution risks or to return the site to a satisfactory condition? (Not required for Medium Combustion Plant or Specified Generators).

No ☐

Yes ☒ Describe the steps you have taken. Tell us the reference for this document, below.

Document reference | See supporting statement and SCR

4c Does a financial provision agreement exist for this site?

No ☐

Yes ☐

Now fill in part F1

5 Surrendering mobile plant

I want to surrender the environmental permit mentioned in section 1 above ☐

5a Tell us the date on which you want to surrender the permit

Note: this must be at least 20 working days from the date you fill this form in.

Date you want to surrender the plant |

Application for an environmental permit: Part F1 – Opra, charges and declarations

Fill in this part for all applications for installations, waste operations, mining waste operations and groundwater discharges onto land.

Please check that this is the latest version of the form available from our website.

For applications for water discharge and point source groundwater discharge activities you need to fill in part F2 instead.

Please read through this form and the guidance notes that came with it. All relevant guidance documents can be found on our website.

Contents

1 Working out charges (you must fill in this section)

You have to submit an application fee with your application. You can find out the charge by looking at our current environmental permitting charging scheme. This can be found on our 'How we regulate you' webpages. Please remember that the charges are revised on 1 April each year and that there is an annual subsistence charge (for site based permis) to cover the costs we incur in the ongoing regulation of the permit.

Examples: We have included examples to help you complete the table. The Tier 2 charge example is for an application for a 'New standard rule' permit. The Tier 3 charge example is for an installation Opra based charge for a normal variation (multiplier) application.

Note: for Opra charged Tier 3 Facilities you also need to complete an Opra profile (see section 2).

Table 1 – Working out charges				
Type of application	Partial surrender low risk			
	Summary of charges			
Tier 2 facilities (including Part A(2) and Part B)	Charge identifier	Number of facilities	Charge for each facility (£)	Charges due (£)
EXAMPLE: SR2010 No12	S060A (W)	1	1,630.00	1,630.00
Tier 3 facilities				
EXAMPLE: Total Opra charging score for installations	90	× charge multiplier	57	5,130.00
Total Opra charging score for installations		× charge multiplier		
Total Opra charging score for waste operations		× charge multiplier		
Total Opra charging score for mining waste facilities				
Other charges (such as one-off assessments or fixed charge applications etc.)	2,593			2,593
			Total charges due	2,593

2 Opra profile (does not apply to standard facilities, or other tier 2 permit applications)

If you are submitting a bespoke application, you must include a completed electronic copy in Excel of the *current* Opra spreadsheet. You can find the current Opra spreadsheet in the 'Our charges' section on our 'How we regulate you' webpages.

For all variations, full and partial surrenders: you will need to submit a copy of your current Opra profile based on your existing profile, not a new profile following the variation or surrender.

For transfers: you will need to submit a revised Opra profile to include your own operator performance. Note: this will not change the set transfer fee.

Important: your Opra profile (score) must match our records. If you are unsure about your current Opra profile (score), you should talk to your regulatory officer before submitting your application.

Tick this box to confirm that you have included the electronic OPRA spreadsheet ☒

3 Payment

3a How do you want to pay?

Tick an option below to show how you will pay.

Electronic transfer (for example, BACS)	☐	*Go to section 3b*
Credit or Debit card	☒	*Go to section 3c*
Cheque	☐	*Go to section 3d*
Postal order	☐	*Go to section 3d*

3b Paying by electronic transfer

If you choose to pay by electronic transfer use the following information to make your payment. Company name: Natural Resources Wales

Company address: Income Dept., PO BOX 663, Cardiff, CF24 0TP

Bank: RBS

Address: National Westminster Bank Plc, 2 ½ Devonshire Square, London, EC2M 4BA

Sort code: 60-70-80

Account number: 10014438

Reference number

You can use any reference number but we prefer the number to be 'EPR' followed by the first nine letters of your organisation name followed by a four-digit number.

For example, for a company named Joe Bloggs Ltd, the reference number might be EPRJOEBLOGGS0001. (Remember you can use any four-digit number at the end.)

The reference number you will provide will appear on our bank statements so we can check your payment. We may need to contact your bank to make sure the reference number is quoted correctly.

You should also email your payment details and payment reference number to banking.team@naturalresourceswales.gov.uk / banking.team@cyfoethnaturiolcymru.gov.uk or fax it to 0300 065 3001 and enter it in the space provided below.

BACS reference	
Amount paid	

Making payments from outside the UK

These details have changed. If you are making your payment from outside the United Kingdom (which must be received in sterling), our IBAN number is GB70 NWBK6070 8010 0144 38 and our SWIFT/BIC number is NWBKGB2L.

If you do not quote your payment reference number, there may be a delay in processing your payment and application.

3c Paying by credit or debit card

If you are paying by credit or debit card, please fill in the separate form CC1.

You can download this from our website or you can ask for one of our customer service providers to send one by post. We will destroy your card details once we have processed your payment. We can accept payments by Visa, MasterCard or Maestro UK card only.

3d Paying by cheque or postal order

You should make cheques or postal orders payable to Natural Resources Wales and they should be marked 'A/c Payee'.

We *will not* accept post-dated cheques (cheques with a future date written on them).

Cheque/ postal order number	
Amount paid	

4 The Data Protection Act 1998 and General Data Protection Regulations

We, the Natural Resources Body for Wales (hereafter "Natural Resources Wales"), will process the information you provide so that we can:

- deal with your application;
- make sure you keep to the conditions of the licence, permit or registration;
- process renewals; and
- keep the public registers up to date.

We may also process or release the information to:

- offer you documents or services relating to environmental matters;
- consult the public, public organisations and other organisations (for example, the Health and Safety Executive, local authorities, the emergency services, the Department for Environment, Food and Rural Affairs) on environmental issues;
- carry out research and development work on environmental issues;
- provide information from the public register to anyone who asks;
- prevent anyone from breaking environmental law, investigate cases where environmental law may have been broken, and take any action that is needed;
- assess whether customers are satisfied with our service, and to improve our service; and
- respond to requests for information under the Freedom of Information Act 2000 and the Environmental Information Regulations 2004 (if the Data Protection Act allows). We may pass the information on to our agents or representatives to do these things for us.

5 Confidentiality and national security

We will normally put all the information in your application on a public register of environmental information. However, we may not include certain information in the public register if this is in the interests of national security, or because the information is confidential

Confidentiality

You can ask for information to be made confidential by enclosing a letter with your application giving your reasons. If we agree with your request, we will tell you and not include the information in the public register. If we do not agree with your request, we will let you know how to appeal against our decision, or you can withdraw your application.

Only tick the box below if you wish to claim confidentiality for your application.

Please treat the information in my application as confidential ☐

Tick the box to confirm you have provided evidence to support your confidentiality claim and give us the document reference, below. ☐

Document reference

National security

You can tell the Welsh Ministers that you believe including information on a public register would not be in the interests of national security.

You must enclose a letter with your application telling us that you have told the Welsh Ministers and you must still include the information in your application. We will not include the information in the public register unless the Welsh Ministers decides that it should be included.

You can find guidance on national security in 'Core Environmental Permitting Guidance' published by Defra and available via the .Gov website.

You cannot apply for national security via this application.

6 Application checklist (you must fill in this section)

Tell us about the supporting evidence and information you have sent with this application.

Application fee - You must submit the correct application fee in line with our current charging scheme.

Tick the box to say you have included the correct fee. ☒

List all the documents you have included in Table 2. Please see the guidance notes for examples on how to complete the checklist.

If the relevant information for a question forms part of a larger document, please specify the relevant section(s) of the document. This will speed up the process of checking your application and making decisions.

If necessary, continue on a separate sheet and tell us the reference you have given the document below.

Document reference

Table 2 – application checklist

Question reference	Document title/ reference	Document section
Form E2 Q1a	Supporting Statement	Appendix D
Form E2 Q2b	Supporting Statement	Appendix C
Form E2 Q2d	Supporting Statement	Appendix D
Form E2 Q3a	Supporting Statement	Appendix F of SCR
Form E2 Q3b	Supporting Statement	Appendix F of SCR
Form E2 Q4a	Supporting Statement	Appendix C
Form E2 Q4b	Supporting Statement	Appendix C

7 Declaration

You must read this section before making the declaration and sending your form to us.

For transfer applications - Both you and the person receiving the permit must make the declaration.

Section 7d must be completed by the current holder *and* Section 7e must be completed by the proposed new holder.

A relevant person should make the declaration. You must be a relevant person or have the authority of a relevant person to sign this application on their behalf.

Relevant people means each applicant, and in the case of a company, a director, manager, company secretary or any similar officer or employee listed on current appointments in Companies House. In the case

of a Limited Liability Partnership (LLP), it includes any partner. If the permit holder is an organisation of individuals, each individual (or individual trustee) must complete the declaration.

To simplify and speed up the application process we recommend that the declaration is filled in by an officer of a company or one of the partners in a Limited Liability Partnership (LLP).

If you wish a manager, employee or consultant etc. to sign the declaration on behalf of a relevant person, we will need written confirmation from a relevant person; that is, an officer of the company, a partner in the LLP or the individual, confirming that the person has the authority to fill in the declaration.

If you are joint permit holders you should each fill in your own declaration. We have provided extra spaces for this below. Please send in a separate sheet with your application if you need more room for signatories.

Where the operator is the subject of any insolvency procedure, the declaration must be filled in by the official receiver/appointed insolvency practitioner.

7a Are you signing the form on *behalf of* a relevant person?

If you are *not* a relevant person, but want to sign the application on their behalf, you must include confirmation that you can do this.

I have included written confirmation from a relevant person to confirm I can sign on their behalf. ☐

7b Does your application include a standard facility?

If your application includes a standard facility, you also need to confirm that you are able to meet all relevant criteria of the standard rule set/sets for which you are applying.

I confirm that my standard facility will fully meet the rules that I have applied for. ☐

7c Does your application include ecological survey information?

If your application includes ecological survey information, please see the guidance notes on part F1 and tick the box below to confirm that you have no issue with us using information from any ecological survey you have supplied with your application.

I confirm I am happy for the ecological survey information I have supplied to be used as set out in the guidance. ☐

7d Declaration

If you're transferring the permit, the current holder or holders should sign this section of the declaration, and the proposed new holder or holders of the permit should sign the declaration in section 7e.

If you knowingly or recklessly make a statement which is false or misleading to help you get an environmental permit (for yourself or another person), you are committing an offence under the Environmental Permitting (England and Wales) Regulations 2016.

I declare that the information in this application is true to the best of my knowledge and belief. I understand that this application may be refused or approval withdrawn if I give false or incomplete information.

I understand that if I knowingly or recklessly make a false or misleading statement:

- **I may be prosecuted; and**
- **if convicted, I may have to pay a fine and/or go to prison.**

By signing below, you are confirming that you understand and agree with the declaration above.

Title	Mr	
First name	Eamon	
Last name	O'Loughlin	
On behalf of (if relevant)	South Hook LNG Terminal Company Limited	
Today's date	20/12/2022	

If you knowingly or recklessly make a statement which is false or misleading to help you get an environmental permit (for yourself or another person), you are committing an offence under the Environmental Permitting (England and Wales) Regulations 2016.

I declare that the information in this application is true to the best of my knowledge and belief. I understand that this application may be refused or approval withdrawn if I give false or incomplete information.

I understand that if I knowingly or recklessly make a false or misleading statement:

- **I may be prosecuted; and**
- **if convicted, I may have to pay a fine and/or go to prison.**

By signing below, you are confirming that you understand and agree with the declaration above.

Title		
First name		
Last name		
On behalf of (if relevant)		
Today's date		

7e Declaration for the person or persons *receiving* the permit (transfers only)

The persons 'receiving the permit' is the proposed new permit holder.

Note: If you cannot trace a person or persons holding the permit you may be able to transfer the permit without their declaration (in section 7d above). Please contact us to discuss this and supply evidence in your application to confirm you are unable to trace one or all of the permit holders.

If you knowingly or recklessly make a statement which is false or misleading to help you get an environmental permit (for yourself or another person), you are committing an offence under the Environmental Permitting (England and Wales) Regulations 2016.

I declare that the information in this application is true to the best of my knowledge and belief. I understand that this application may be refused or approval withdrawn if I give false or incomplete information.

I understand that if I knowingly or recklessly make a false or misleading statement:

- **I may be prosecuted; and**
- **if convicted, I may have to pay a fine and/or go to prison.**

By signing below, you are confirming that you understand and agree with the declaration above.

Title		
First name		
Last name		
On behalf of (if relevant)		
Today's date		

If you knowingly or recklessly make a statement which is false or misleading to help you get an environmental permit (for yourself or another person), you are committing an offence under the Environmental Permitting (England and Wales) Regulations 2016.

I declare that the information in this application is true to the best of my knowledge and belief. I understand that this application may be refused or approval withdrawn if I give false or incomplete information.

I understand that if I knowingly or recklessly make a false or misleading statement:

- **I may be prosecuted; and**
- **if convicted, I may have to pay a fine and/or go to prison.**

By signing below, you are confirming that you understand and agree with the declaration above.

Title		
First name		
Last name		
On behalf of (if relevant)		
Today's date		

Appendix B
ENVIRONMENTAL PERMIT

Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

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.

The South Hook Liquefied Natural Gas (LNG) Terminal reheats LNG delivered via ships to produce natural gas using a total of sixteen Submerged Combustion Vapouriser (SCV) combustion units, although the site is permitted to use fifteen at any one time. In this technique, natural gas is burnt and the combustion gases are passed through a volume of water. In the warm water is a heat exchanger filled with LNG entering at one end and vapourised to natural gas at the other. Nitrogen is added to the natural gas before the natural gas enters the National Gas Transmission System. The off gas from each SCV passes out to air through a 24 metre stack. The primary pollutants released from combustion of natural gas are oxides of nitrogen and carbon monoxide. Excess water from the SCVs are collected and neutralised before being discharged into the Haven.

The target average natural gas send out capacity is 650 GWh per day, with peak flow rate of 812 GWh per day. Each combustion unit has an thermal input of 32 MWth (average) and 40 MW (peak flow rate) therefore all sixteen aggregate to above 50 MW thermal input. One of the SCVs added in variation V004 is considered a new Medium Combustion Plant as put into operation after 20 December 2018.

The South Hook LNG Terminal is located near Herbrandston, in Pembrokeshire. The installation is within 2 km of Milford Haven Waterway Site of Special Scientific Interest (SSSI) and within 10 km of Limestone Coast of South West Wales Special Area of Conservation (SAC), Pembrokeshire Marine SAC, West Wales Marine SAC, Castlemartin Coast Special Protection Area (SPA) and Skomer, Skokholm and the Seas of Pembrokeshire SPA.

LNG carriers, ships or other vessels 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.

Status log of the permit		
Description	**Date**	**Comments**
Application received 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

BW9816IE		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 a more detailed engineering design
Additional information received	15/11/07	Supporting information regarding discharge of nitrates into the Haven
Variation determined EPR/XP3538LD/V002	16/05/08	Varied permit issued.
Variation 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/V003	14/10/15	Varied and consolidated permit issued in modern condition format
Variation application EPR/XP3538LD/V004 (variation and consolidation)	Duly made 15/12/20	Application to add one new submerged combustion vapouriser (SCV) among other changes to the permit.
Variation determined EPR/XP3538LD/V004	15/04/21	Varied and consolidated permit issued to Operator.

Other Part A installation permits relating to this installation		
Operator	**Permit number**	**Date of issue**
South Hook CHP Limited	EPR/XP3936NS	Issued 21/05/15 Surrendered 23/06/16

End of introductory note

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number
EPR/XP3538LD

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/XP3538LD/V004 authorising

South Hook LNG Terminal Company LTD. ("the operator"),

whose registered office is

South Hook LNG Terminal Company Ltd
Dale Road
Herbrandston
Milford Haven
Pembrokeshire
Wales
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.

Signed	Date
Holly Noble	**14/04/2021**

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.

2.3.5 For the following activities referenced in schedule 1, table S1.1 (A2) the activities shall be operated using the techniques and, in the manner, described in schedule 1, table S1.2A

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 and S3.2.

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 and S3.2

(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 and S3.2 unless otherwise agreed in writing by Natural Resources Wales.

3.5.5 For the following activities referenced in schedule 1, table S1.1 (A2) the first monitoring measurements shall be carried out within four months of the issue date of the permit or the date when the MCP is first put into operation, whichever is later.

3.5.6 For the following activities referenced in schedule 1, table S1.1 (A2) monitoring shall not take place during periods of start up or shut down

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.

4.1.3 For the following activities reference in schedule 1, table S1.1 (A2) the operator shall maintain a record of the type and quantity of fuel used and the total annual hours of operation for each MCP and/or Specified Generator.

4.1.4 For the following activities reference in schedule 1, table S1.1 (A2) the operator shall maintain a record of any events of non-compliance and the measures taken to ensure compliance is restored in the shortest possible time.

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 reference	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity**
A1	S1.1 A(1)(a): Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more	Reheated liquefied natural gas (LNG) to produce natural gas with fifteen combustion units (aggregate to above 50 MWth)	From receipt of LNG to the transfer of natural gas to the National Gas Transmission system.
A2 NGR: SM 87260 06410		Schedule 25A Medium Combustion Plant: 1x submerged combustion vapouriser as detailed in Schedule 8. MCPD Identifier: 44-E6901 H	Includes the sixteen 24 metre stacks and associated devices and systems for controlling combustion conditions and emissions. Includes the operation of the waste water treatment plant and the collection and treatment of surface water. A maximum of fifteen combustion units to operate at any one time.
Directly Associated Activity			
A3	Directly associated activity	Receipt and storage of LNG	From receipt of LNG, including flaring and venting, to dispatch for use

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, B2.71, 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 XP3538LD/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

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Variation application EPR/XP3538LD/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 XP3538LD Application Form Part C3 – Section 3 Operating Techniques Table 3 – Technical Standards	12/03/14
Variation application EPR/XP3538LD/V004	Document reference: Application to Vary Environmental Permit Reference EPR/XP3538LD – Supporting Information including all appendices	02/10/20
	Document reference: Application to Vary Environmental Permit Reference EPR/XP3538LD – Post Site Capacity Test Addendum	15/12/20

Table S1.2A Operating techniques for Medium Combustion Plant as detailed in Schedule 8
Description
Each MCP must be operated in accordance with the manufacturer's instructions and records must be made and retained to demonstrate this
The operator must keep periods of start-up and shut-down of each MCP as short as possible
There must be no persistent emission of 'dark smoke' as defined in section 3(1) of the Clean Air Act 1993

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**
-	-

Schedule 3 – Emissions and monitoring

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

Emission point ref. & location	Source	Parameter	Limit (including unit) – 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 NRW)
A1 – A8 A11 – A17 [Points A1 – A8 and A11 – A17 as detailed on site plan in Schedule 7)	Submerged Combustion Vaporisers	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	107 mg/m^3	Daily mean (1 SCV in Phase 1 and 1 SCV in Phase 2 only)	Continuous (1 SCV in Phase 1 and 1 SCV in Phase 2 only)	EN 15267-3 In respect of QAL 1 only BS EN 14181 (1 SCV in Phase 1 and 1 SCV in Phase 2 only)
			107 mg/m^3	One hour sample	Quarterly	BS EN 14792
		Carbon monoxide	No limit set	Not specified	Quarterly	BS EN 15058
A18 [Point A18 as detailed on site plan in Schedule 7]	Submerged Combustion Vaporiser MCPD Indentifier 44-E6901 H	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	100 mg/Nm^3	Periodic	Quarterly	BS EN 14792
		Carbon monoxide	No limit set	Periodic	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	-	-	-	-	-

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**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 NRW)**
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	-	-	-	-	-
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	-	-	-	-	-

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**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 NRW)**
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	-	-	-	-	-
A144 – A145	LNG Export analysers – LNG Sulphur Chromatograph analysers chromatograph- Exhaust	-	-	-	-	-
A146 [Point A146 as detailed on site plan in Schedule 7]	Combustion emissions from temporary Portable Air Compressor fuelled on diesel – instrument air compressor / drier skid	-	-	-	-	-

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (incl. unit)**	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
W1 on site plan in Schedule 7 (or as agreed with NRW)	Site drainage (surface and ground-water)	pH	6 – 9	Maximum	Daily	BS ISO 10523
		Turbidity	No limit set	Not specified	Daily	BS EN ISO 7027
		Oil and grease	None visible	Spot sample	Daily	Visual Check
		TOC	No limit set	Spot sample	Weekly	BS EN 1484
		List 2 metals (copper, zinc and iron only)	No limit set	Maximum	Monthly	APHA 3120B
W2 on site plan in Schedule 7	Process effluents	Flow	3500 m^3 per day	24 hour period aligned with gas day	Continuous	Flow meter
			164 m^3 per hour	Maximum		
		pH	6 – 9	Daily maximum	Continuous	BS ISO 10523
		Nitrates as N	50 mg/L	Spot sample	Daily	APHA 4500-NO3-B
			100 kgN/day	Spot sample		
			50 kgN/day annual mean	Annual average		
		Oil and grease	None visible	Spot sample	Daily	Visual check
		Total Residual Oxidant (As Total Free Chlorine)	0.1 mg/L	Spot sample	Monthly	Hach DPD Chlorine test kit for Total Free Chlorine
		Biological Oxygen Demand (BOD)	No limit set	Spot sample	Monthly	HMSO BOD5 II
		Temperature	30 °C	Daily maximum	Continuous	Standard thermocouple

Table S3.3 Process monitoring requirements				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Natural gas consumption	MWh	Continuous	Flow meter	-
Operating hours – LNG only	Hours	Continuous	-	-

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 – A8 A11 – A18	Every 12 months	1 January
Emissions to water Parameters as required by condition 3.5.1	W1, W2	Every 6 months	1 January, 1 July

Table S4.2: Annual production/treatment

Parameter	Units
Natural gas produced	tonnes

Table S4.3 Performance parameters

Parameter	Frequency of assessment	Units
Water usage	Annually	m^3
Energy usage	Annually	MWh
Gas 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	15/04/21
Water	Form water 1 or other form as agreed in writing by Natural Resources Wales	15/04/21
Water usage	Form water usage 1 or other form as agreed in writing by Natural Resources Wales	14/10/15
Energy usage	Form energy 1 or other form as agreed in writing by Natural Resources Wales	14/10/15
Other performance indicators	Form performance 1 or other form as agreed in writing by Natural Resources Wales	15/04/21

Schedule 5 - Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any activity that gives rise to an incident or accident which significantly affects or may significantly affect the environment	
To be notified Immediately	
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 permit condition	
To be notified immediately	
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**

(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:	
To be notified immediately	
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.

"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 Commité Européen de Normalisation

"Combustion Technical Guidance Note" means IPPC Sector Guidance Note Combustion Activities, version 2.03 dated 27th 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 NOx 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

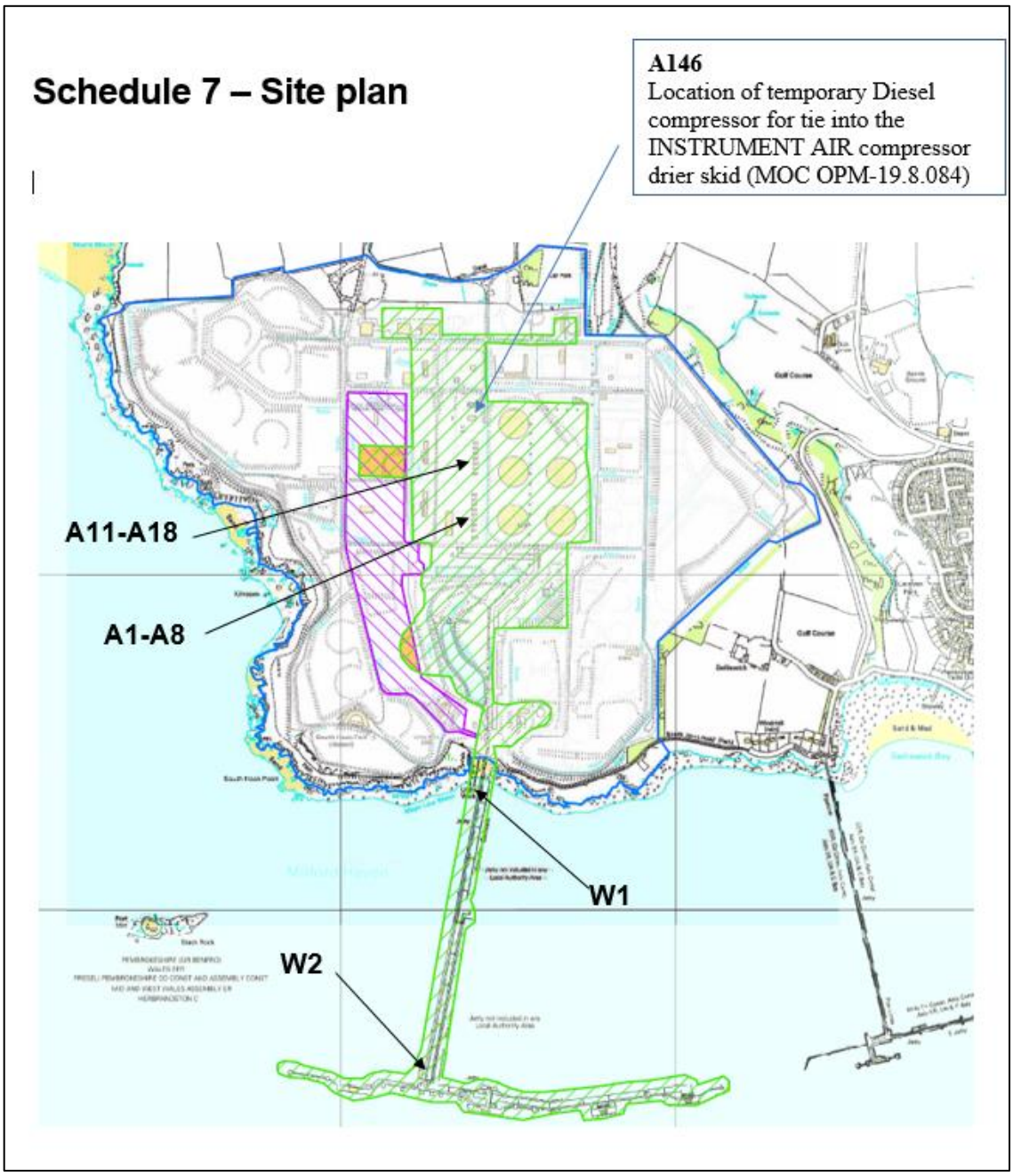
"year" means calendar year ending 31 December, aligned to gas days

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 273 K, 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



Schedule 8 – Annex 1 of MCPD

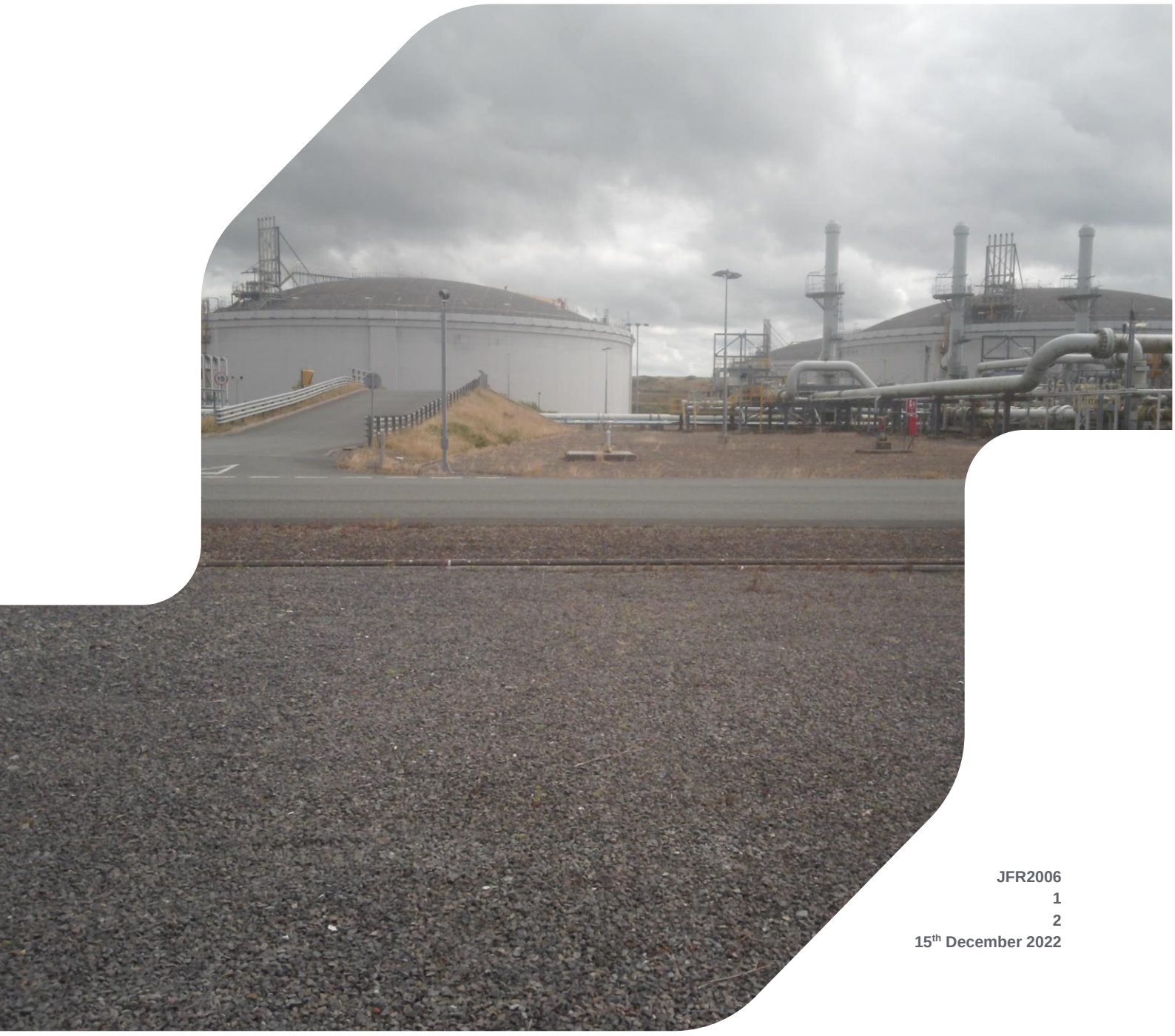
1. Rated thermal input (MW) of the medium combustion plant.	40 MWth (peak) 32 MWth (average)
2. Type of the medium combustion plant (diesel engine, gas turbine, dual fuel engine, other engine or other medium combustion plant).	Other medium combustion plant
3. Type and share of fuels used according to the fuel categories laid down in Annex II.	Natural gas 100 %
4. Date of the start of the operation of the medium combustion plant or, where the exact date of the start of the operation is unknown, proof of the fact that the operation started before 20 December 2018.	Currently not operational, TBC
5. Sector of activity of the medium combustion plant or the facility in which it is applied (NACE code).	D35.21
6. Expected number of annual operating hours of the medium combustion plant and average load in use.	8760 32 MWth average load in use
7. Where the option of exemption under Article 6(3) or Article 6(8) is used, a declaration signed by the operator that the medium combustion plant will not be operated more than the number of hours referred to in those paragraphs.	Not applicable
8. Name and registered office of the operator and, in the case of stationary medium combustion plants, the address where the plant is located.	Operator: South Hook LNG Terminal Company LTD Dale Road Herbrandston Milford Haven Pembrokeshire Wales SA73 3SU MCP Address: South Hook LNG Terminal Dale Road Herbrandston Milford Haven Pembrokeshire Wales SA73 3SU

END OF PERMIT

Appendix C
SITE CONDITION REPORT

SITE CONDITION REPORT

On Behalf of South Hook LNG Terminal Company Limited



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Document status

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Wayne Davies	Technical Director	15 December 2022

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Prepared for:

South Hook LNG Terminal Company Limited

Contents

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Appendices

1 INTRODUCTION

1.1 Background

1.1.1 South Hook LNG Terminal Company Limited intends to submit an application to the Environment Agency for the partial surrender of land which falls within the permitted area of the LNG (Liquified natural Gas) Terminal facility permit (EPR/XP3538LD) located near Herbrandston, in the county of Pembrokeshire

To support the application for the permit, there is a requirement to a Site Condition Report.

1.1.2 RPS has been commissioned by South Hook LNG Terminal Company Limited to prepare the Site Condition Report to support the proposed application to surrender part of the permitted area of the environmental permit. As such, this report has been prepared in accordance with the Natural Resources Wales's H5 Horizontal Guidance.

1.1.3 The report "Updated Site Condition Report (SCR)/ Baseline Report under the Industrial Emissions Directive (IED) for the South Hook LNG Terminal Permitted Installation, Milford Haven" by RPS produced in May 2018 (reference SH-40-70-EN-RP-NA-001), previously provided to the regulator, provides a rigorous evaluation of the facility condition. This serves as a basis for the rationalisation of the partial surrender application.

1.1.4 RPS has prepared this report based on information and data available at the time of preparation of the report.

1.2 Key Objectives

1.2.1 The key objectives of this report are to:

- Establish the environmental setting of the site and determine its environmental sensitivity;
- Identify activities that are currently undertaken at the site, including the identification of Relevant Hazardous Substances and preventative measures implemented to protect land and groundwater;
- Establish the extent of historical contamination in the soil and groundwater in areas where current and/or future processes may include similar potentially contaminating substances;
- To identify the Site Conditions at the site at the point of partial surrender the permitted area for the facility such that they may be used as a point of reference to determine whether the site has been contaminated during the site's permitted operation in line with Environmental Permitting Regulations requirements; and
- To provide conclusions on whether land quality has been impacted from historical activities.

1.3 Description of Permitted Activities

1.3.1 The South Hook LNG Terminal permitted installation is operated by the South Hook LNG Terminal Company Limited, in compliance with environmental permit reference EPR/XP3538LD, Appendix A. The LNG (Liquified natural Gas) Terminal receives stores and vaporises LNG to form natural gas for send out to the National Transmission System (NTS) operated by the National Grid (NG).

1.3.2 Following delivery, LNG is pumped from LNG ships moored at the jetty site into tanks where it is stored until it is re-gasified to meet specific grid demand. The LNG is converted back into natural gas through a process known as regasification.

1.3.3 Re-gasification of the LNG is currently achieved by operation of up to 15 No. submerged combustion vaporisers (SCVs), the number of SCV units operating at any given time being dependent on gas send-out nominations, operational and maintenance constraints.

1.3.4 Each SCV comprises a stainless-steel tube bundle immersed in a warm water bath. The LNG flows through the tube bundle and is heated and re-gasified by heat transferred from the water bath. The warm water temperature is maintained by supplying heat to the water in the SCVs through direct contact with hot gases resulting from the combustion of a small portion of the re-gasified natural gas produced at the LNG Terminal.

1.3.5 The natural gas produced, supplies the National Transmission System (a network of gas pipelines that transports gas throughout the UK). The South Hook LNG Terminal has a total processing capacity of 15.6 million tonnes per annum, which is equivalent to around 20% of the current UK natural gas demand. In Quarter 1 2022, SHLNG has supplied 52.5% of the UK's LNG market share. SHLNG is also classified as a key National Infrastructure installation.

2 APPLICATION SITE CONDITION REPORT

2.1 Application Phase

2.1.1 This SCR, is prepared in accordance with the Natural Resources Wales (NRW) Horizontal Guidance Note H5, provides references to the various chapters of this report, where available information on the known current condition of the operational areas identified in the partial surrender application is provided.

2.2 Site Condition Report Summary

1.0 Site Details	
Name of the applicant	South Hook LNG Terminal Company Limited
Activity address	Dale Road, Herbrandston, Milford Haven, Pembrokeshire, SA73 3SU
National grid reference	SM 8733 0638
Site area (ha)	64.41 Hectares
Document reference and dates for Site Condition Report at permit application and surrender	Updated Site Condition Report (SCR)/ Baseline Report under the Industrial Emissions Directive (IED) for the South Hook LNG Terminal Permitted Installation, Milford Haven" by RPS produced in May 2018 (reference SH-40-70-EN-RP-NA-001) provided to the regulator previously
Document references for site plans (including location and boundaries):	Current site plan, Schedule 7 of permit EPR/XP3538LD, Appendix A Revised Site Plan - Drawing JAS6495_figure_2_boundary_Rev6JP-A4_layout Revised site boundary, Appendix F

2.0 Condition of the land at permit issue	
Environmental setting including: • Topography • Geology • Hydrogeology • Hydrology • Environmental Consents, Licences, Authorisations, Permits and Designations	The site is located on two flat-topped hills with an elevation of approximately 56 metres above Ordnance Datum (m AOD) that are bisected by an approximately north-south oriented valley that historically discharged to the Milford Haven Waterway in the south. The site elevation changes from the high flat-topped hills at approximately 56 m AOD through the northern and eastern areas of the site, to c. 5 m AOD in the valley bottom at its confluence with the sea at Little Wick Bay in the south. The valley marks the course of a former natural watercourse at this locality that now follows a highly modified channel and valley. The valley contains the "skim pond" at its southern end, an impounded water body that discharges to the sea via a concrete pipe situated immediately down stream of weir situated at the southern end of the skim pond. The installation is within 2 km of Milford Haven Waterway Site of Special Scientific Interest (SSSI) and within 10 km of Limestone Coast of South West Wales Special Area of Conservation (SAC), Pembrokeshire Marine SAC, West Wales Marine SAC, Castlemartin Coast Special Protection Area (SPA) and Skomer, Skokholm and the Seas of Pembrokeshire SPA. The installation is a COMAH site

2.0 Condition of the land at permit issue

Pollution history including: • Location, nature of incidents or direct discharges that may have affected soil or groundwater • Historical land uses and associated contaminants	No known pollution incidents during the operational life of the facility.
Evidence of historic contamination, for example, historical site investigation, assessment, remediation and verification reports (where available)	The site has historic use as an Esso Oil Refinery site which is understood to have been constructed in the late 1950s and subsequently expanded in the 1970s. The Oil Refinery was closed in 1983 and fully decommissioned by 1990. The site has not been an active refinery for approx. 38 years. Esso applied for a PPC permit for the proposed LNG facility, which was determined in 2003 and in 2006 this permit was transferred to South Hook LNG Terminal Company Limited. Remediation works were carried out in areas of historic contamination between 2004 and 2005. Residual hydrocarbon contamination was reported to be principally in decline from 2006 remediation phase to 2016 in most part of the site with Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) concentration below 0.5 mg/l. These historic contaminated areas do not fall within the areas of the proposed surrender.
Baseline soil and groundwater reference data	Updated Site Condition Report (SCR)/ Baseline Report under the Industrial Emissions Directive (IED) for the South Hook LNG Terminal Permitted Installation, Milford Haven" by RPS produced in May 2018 (reference SH-40-70-EN-RP-NA-001) previously provided to the regulator
Supporting information	

3.0 Permitted activities

Permitted activities	S1.1 A(1)(a): Burning any fuel by reheated liquefied natural gas (LNG) to produce natural gas with sixteen combustion units Directly associated activity of receipt and storage of LNG
Non-permitted activities undertaken	None
Document references for: • plan showing activity layout; and • environmental risk assessment.	Revised site boundary Drawing JAS6495_figure_2_boundary_Rev6JP-A4_layout Appendix F Environmental Risk Assessment (dated 2020), originally produced to support Application to Vary Environmental Permit Reference EPR/XP3538LD, Appendix I

3 STAGE 1 – IDENTIFY WHICH HAZARDOUS SUBSTANCES ARE USED, PRODUCED OR RELEASED AT THE INSTALLATION AND PRODUCE A LIST OF THESE SUBSTANCES

3.1.1 The IED relates to contamination risk associated with “hazardous substances” used, produced and/or released by the facility. Hazardous substances are defined as substances or mixtures defined in Article 3 of Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on Classification, Labelling and Packaging of substances and mixtures (the “CLP Regulations”). The determination of whether a substance is a hazardous substance is largely determined using the substance CAS Number and European Chemicals Agency (ECHA) database (Ref. 2).

3.1.2 The most recent Environmental Risk Assessment (ERA) was undertaken in accordance with the CDOIF Guideline on Environmental Risk Tolerability for COMAH Establishments version 2.0, to support the Company’s COMAH Safety Report review and update in 2016. This determined that only the following substances were held on site at ‘the COMAH establishment’ in sufficient quantities to potentially cause environmental harm:

- LNG
- Diesel
- Caustic soda - Sodium hydroxide (NaOH) solution
- Expandol Firefighting Foam.
- Firewater
- Hydraulic oil (in jetty unloading arms)
- De-minimis miscellaneous oils, greases and ancillary chemicals
- Transformer oil

3.1.3 Whilst these substances have been identified as being held on the site, with the exception of LNG storage, they are not in use regularly as part of the permitted activities. These substances may only be used or produced in an emergency or during ad-hoc maintenance activities.

3.1.4 The areas which have been identified as part of the partial surrender application have not been subject to any operational activities nor have these areas been used for the storage of any substances identified in section 3.1.2. Therefore, these substances will not be considered any further.

4 STAGE 2 – IDENTIFYING THE RELEVANT HAZARDOUS SUBSTANCES

4.1.1 Stage 1 has not identified hazardous substances that are stored and used on site as part of site operations.

5 STAGE 3 – ASSESSMENT OF THE SITE SPECIFIC POLLUTION POSSIBILITY

5.1.1 Stage 2 has not identified hazardous substances that are stored and used on site as part of site operations.

6 STAGE 4 – PROVIDE A SITE HISTORY

6.1.1 The purpose of Stage 4 is to determine which of the substances identified in Stage 3 have the potential to be present on site in the soil and groundwater already as a result of activities undertaken at the site to date and to determine whether they are coincident with potential future emission points.

6.1.2 Stage 3 has not identified hazardous substances that are stored and used on the areas of the proposed surrender within this application.

6.2 General Site History

6.2.1 The SHLNG Terminal is located on a former Esso Oil Refinery site which is understood to have been constructed in the late 1950s and subsequently expanded in the 1970s. The Oil Refinery was closed in 1983 and fully decommissioned by 1990. Esso applied for a PPC permit for the proposed LNG facility, which was determined in 2003 and in 2006 this permit was transferred to South Hook LNG Terminal Company LTD.

6.2.2 The site history is summarised in Table 6.1.

Table 6.1 Summary of Key Land-use Phases on the SHLNG Terminal Site (from RPS, 2018)

Date	Phase
Pre-1983	Refinery Operation Phase
1983 – 1986	Refinery Decommissioning Phase
1993 – 2003	Post Closure Site Characterisation Works
2004 – 2005	SHLNG Site Remediation & Site Preparation Phase
2005 – 2010	SHLNG Site Construction Phase
2009 to date	SHLNG Operational Phase

6.3 Previous Ground Investigation

6.3.1 In 2004 South Hook LNG Terminal Company Ltd commissioned a ‘Site Remediation Plan’ for the development of the site. Following approval by the regulator, the site preparation works, including remediation works, were commenced. Site remediation works were undertaken in “Contaminant Affected Areas” (CAAs) between 2004 and 2005 in advance of construction, with the SHLNG Terminal becoming fully operational in 2009, Appendix E.

6.3.2 Soil, groundwater and surface water monitoring has been undertaken extensively across the site under SHLNG Environmental Permit ownership with the aim to monitor remediation works efficacy, to monitor natural attenuation of residual hydrocarbon contamination and to monitor potential impacts of permitted activities. The remediation and construction activities were reported to the regulator in June 2009 by WSPR in “South Hook LNG Groundwater Monitoring and Trend Analysis Report” (Reference 13010481/10rev2) with the aim to identify potential contaminant-related liabilities or additional data requirements and to provide recommendations for future monitoring action. This report identified all groundwater monitoring locations were showing decreasing trend with the exception of BH41a and BH42a.

6.3.3 The updated Site Condition Report (SCR) identified that the site presents low risk to controlled waters. Residual hydrocarbon contamination was reported to be principally in decline from 2006 remediation phase to 2016 in most part of the site with Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) concentration below 0.5 mg/l.

6.3.4 Three known (CAAs) were still showing hydrocarbon concentrations above detection limits as currently monitored in groundwater at BH50, BH41A and BH42A. A plan of these areas has been placed in Appendix E. The three CAAs are described in the RPS 2018 report as:

- Area 1A/1B/1C –Catalyst Disposal Area (BH50)
- Area 4A – Sludge disposal Pit (BH41A)
- Area 21A – Skim Pond (BH42A)

6.3.5 With the exception of these three areas, all other monitoring locations have shown concentrations close to detection limit and indicative of trivial exceedances, i.e. with no environmental significance, as defined by the Environment Agency (EA)[1].

6.3.6 The areas discussed in section 6.3 do not fall within the areas identified for surrender.

[1] https://www.gov.uk/government/publications/groundwater-protection-technical-guidance/groundwater-protection-technical-guidance

7 STAGE 5 – IDENTIFY THE SITE'S ENVIRONMENTAL SETTING

7.1 Surrounding land use and interdependencies

7.1.1 The South Hook LNG Terminal permitted installation is operated by the South Hook LNG Terminal Company Limited, in compliance with environmental permit reference EPR/XP3538LD. The LNG (Liquified natural Gas) Terminal receives stores and vaporises LNG to form natural gas for send out to the National Transmission System (NTS) operated by the National Grid (NG).

7.1.2 South Hook LNG terminal is located at Dale Road, Herbrandston, Milford Haven, Pembrokeshire, SA73 3SU. The national grid reference for the installation is SM 8733 0638.

7.2 Topography

7.2.1 The site is centred at National Grid Reference SM 875 064 and covers a total permitted area of 64.41 Hectares (Ha). The site is located on two flat-topped hills with an elevation of approximately 56 metres above Ordnance Datum (m AOD) that are bisected by an approximately north-south oriented valley that historically discharged to the Milford Haven Waterway in the south.

7.2.2 The site elevation changes from the high flat-topped hills at approximately 56 m AOD through the northern and eastern areas of the site, to c. 5 m AOD in the valley bottom at its confluence with the sea at Little Wick Bay in the south. The valley marks the course of a former natural watercourse at this locality that now follows a highly modified channel and valley. The valley contains the "skim pond" at its southern end, an impounded water body that discharges to the sea via a concrete pipe situated immediately down stream of weir situated at the southern end of the skim pond.

7.3 Geology and Hydrogeology

7.3.1 The site is underlain by Devonian bedrock of the Milford Haven Group that is composed of highly folded and fractured sandstone and mudstone units. These units are generally competent at depth but are overlain by a weathered horizon that typically comprises gravelly bedrock and/or gravelly clay.

7.3.2 Extensive earthworks have been undertaken on the site (for both the former refinery and subsequent LNG Terminal construction) and has resulted in complex shallow ground conditions that comprise variable depths of re-worked, weathered or fill materials in the upper horizons.

7.3.3 Investigations on the site have demonstrated that as a result of the extensive earthworks undertaken on site the ground conditions can commonly be divided into two groundwater bearing units: an upper reworked or weathered layer horizon and the deeper more competent fractured bedrock materials. Groundwater within the weathered or reworked materials is generally restricted to discontinuous layers of higher permeability strata, whilst groundwater within the deeper bedrock materials is for the most part laterally consistent, and in some places confined by overlying lower permeability weathered/reworked materials.

7.3.4 The Devonian sandstone underlying the SHLNG Terminal site is designated a Secondary A aquifer unit by NRW (http://magic.defra.gov.uk/). The bedrock is characterised by a low groundwater yield, only supporting small and/or local abstractions from more permeable horizons or fracture zones. Therefore no Source Protection Zones (SPZ) have been defined for this groundwater bearing unit in the vicinity of the site.

7.3.5 The intergranular porosity of the competent bedrock is low with groundwater flow and storage provided by the fracture porosity. The interconnectivity of the fracture porosity will generally decline with depth as overburden pressure increases and the degree of weathering declines. This will result in an associated reduction in permeability and vertical hydraulic connectivity with depth.

7.4 Hydrology

7.4.1 The surface water bodies within the area of this site are the following:

- Hubberston Pill (~2.2 km to the east)

7.4.2 The Hubberston Pill on the WWF UK Rivers Map has an overall WFD water body classification of "moderate" chemical status.

7.5 Environmental Consents, Licences, Authorisations, Permits and Designations for the Site and Surrounding Areas

Water Discharges and Abstraction Licences

7.5.1 Records of water abstractions are no longer provided on the NRW maps, and are not available with the Open Government License, therefore access to these was not plausible at the time of writing.

7.5.2 The NRW Public Register did not display any water discharge licences for the installation area.

Landfill Sites

7.5.3 There are nine operational landfill sites within a 1km radius of the subject site. In addition there are three registered landfill sites that have been reported as closed and eleven historical facilities.

Waste / Permitted Sites

7.5.4 There are no records of EA licensed waste operations sites within 2 km of the site.

Installations

7.5.5 There is one waste operation within 3 km, details of which are provided in Table 7.

Table 7-1 Summary of Waste Operations Sites within 3 km

Licence Holder	Licence Number	Site Category	Approx. Distance (m) from Post Code
Puma Energy UK Ltd	DP3195LV	Hazardous waste transfer with treatment facility	2250

Statutory Designated / Sensitive Sites within 2 km

7.5.6 Milford Haven Waterway is a designated Site of Special Interest and a Special Area of Conservation. This area is located within 600 m Southwest of the installation boundary.

7.5.7 Pembrokeshire Marine is a designated Special Area of Conservation located approximately 2000 m West of the installation boundary.

Mining

7.5.8 A search of the Coal Authority website shows that the installation is located off the coalfield. From the information currently available to the Coal Authority, a mining report is not required for the installation.

COMAH

7.5.9 A postcode search using the Health & Safety Executive (HSE) COMAH 2015 Public Information Search indicated that, at the time of writing, there are two COMAH sites recorded within 4.8 km of the post code, details of which are provided in Table 72.

Table 7-2 Summary of COMAH Sites within 2.8 km

Licence Holder	Licence Number	Approx. Distance (m) from Post Code
South Hook LNG Terminal Company Limited	XP3538LD	0
Puma Energy UK Ltd	DP3195LV	2250

Radon

7.5.10 According to the National Radiological Protection Board's Radon Atlases of England, Wales and Scotland at the time of writing, the installation lies within a lower band of radon potential, meaning between 10-30% of homes are above the Action Level.

8 STAGE 6 – SITE CHARACTERISATION

8.1 Introduction

8.1.1 Stage 6 to characterise the site. The following sections provide a summary of the potential contamination sources, pathways and receptors identified at the installation, based on the reports identified in Section 7.

8.1.2 The site is located on two flat-topped hills with an elevation of approximately 56 metres above Ordnance Datum (m AOD) that are bisected by an approximately north-south oriented valley that historically discharged to the Milford Haven Waterway in the south.

8.1.3 The site elevation changes from the high flat-topped hills at approximately 56 m AOD through the northern and eastern areas of the site, to c. 5 m AOD in the valley bottom at its confluence with the sea at Little Wick Bay in the south. The valley marks the course of a former natural watercourse at this locality that now follows a highly modified channel and valley. The valley contains the “skim pond” at its southern end, an impounded water body that discharges to the sea via a concrete pipe situated immediately down stream of weir situated at the southern end of the skim pond.

8.1.4 The installation is within 2 km of Milford Haven Waterway Site of Special Scientific Interest (SSSI) and within 10 km of Limestone Coast of South West Wales Special Area of Conservation (SAC), Pembrokeshire Marine SAC, West Wales Marine SAC, Castlemartin Coast Special Protection Area (SPA) and Skomer, Skokholm and the Seas of Pembrokeshire SPA.

8.2 Site Drainage

8.2.1 The permanent water systems consists of drainage channels, v-ditches, catch pits and gullies, interceptors, the attenuation basin, valves and associated piped infrastructure.

8.2.2 The system collects all surface water runoff via a gravity system comprising open channels and culverts.

8.2.3 All site flows are passed to the attenuation basin where they pass a one-way valve (Tideflex) upon entry to the basin.

8.2.4 Under normal operation, flows will pass through the low flow channel at the attenuation basin invert and out to the Haven outfall via the skim pond bypass pipeline.

8.2.5 Catch pit (CP S6), located immediately downstream of the attenuation basin, has one penstock valve for the main discharge of surface waters exiting the attenuation basin, and one penstock valve that may feed the skim pond.

8.2.6 The penstock valve that feeds the skim pond remains permanently closed unless the skim pond requires an increase in level due to drought conditions.

8.2.7 The penstock valve for the main discharge of surface waters exiting the attenuation basin to the Haven will remain open, unless there is an emergency event when the penstock may be closed. This will allow surface waters (and potentially firewater) to be stored in the attenuation basin for inspection/ sampling prior to controlled discharge to the Haven via the skim pond bypass line.

8.2.8 No changes will be made to the site drainage system. The drainage management and operating system has been placed in Appendix C.

8.3 Potential Contamination Sources

8.3.1 The installation is located on a former Oil Refinery site which is understood to have been constructed in the late 1950s and subsequently expanded in the 1970s. The Oil Refinery was closed in 1983 and fully decommissioned by 1990.

8.3.2 In 2004 remediation works, were commenced on the site in “Contaminant Affected Areas” (CAAs) between 2004 and 2005. These CAAs are not located in the areas to be surrendered, see Appendix E and Appendix F.

8.3.3 Soil, groundwater and surface water monitoring has been undertaken extensively across the site under SHLNG Environmental Permit ownership with the aim to monitor remediation works efficacy, to monitor natural attenuation of residual hydrocarbon contamination and to monitor potential impacts of permitted activities. The remediation and construction activities were reported in June 2009 by WSPR in “South Hook LNG Groundwater Monitoring and Trend Analysis Report” (Reference 13010481/10rev2), with the aim to identify potential contaminant-related liabilities or additional data requirements and to provide recommendations for future monitoring action. This report identified all groundwater monitoring locations were showing decreasing trend with the exception of BH41a and BH42a.

8.3.4 Residual hydrocarbon contamination was reported to be principally in decline from 2006 remediation phase to 2016 in most part of the site with Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) concentration below 0.5 mg/l.

8.3.5 The areas to be surrendered have not been used for any operational purposes, remaining as grassland.

9 STAGE 7 – PRODUCE A BASELINE REPORT

9.1 Introduction

9.1.1 This stage summarises all of the information collected in stages 1 to 6 to produce a report which identifies the state of the soil and groundwater contamination by relevant hazardous substances.

9.1.2 As previously highlighted, baseline data for the main site has already been gathered and was reported in the Updated Site Condition Report, previously provided to the regulator.

9.2 Condition of the surrender area

9.2.1 The outcome of the assessment of RHS for the surrender area has confirmed that no substances have been used, stored or produced that will be present in these areas and which need baseline data gathering due to site specific pollution potential. Due to the historic use of the site as an oil refinery, there has previously been legacy contamination.

9.2.2 Remediation works were undertaken in areas identified. Section 6.3 of this report details the nature of these works.

9.2.3 The areas discussed in section 6.3 do not fall within the areas identified for surrender. These areas are undisturbed as they are outside the operational area of the installation.

9.2.4 Images of the areas for surrender have been placed in Appendix H.

10 OPERATION SITE CONDITION REPORT

10.1 Operational Phase

10.1.1 This SCR, prepared in accordance with the EA "H5 Site Condition Report" guidance (Ref. 3), contains information on the condition of the site during the operational phase of the facility.

10.2 Site Condition Report Summary

4.0 Changes to the activity	
Have there been any changes to the activity boundary? If yes, provide a plan showing the changes to the activity boundary.	No. This application is for proposed changes to reduce the site boundary, as shown in the revised site plan, Appendix F
Have there been any changes to the permitted activities? If yes, provide a description of the changes to the permitted activities	Yes 2021 - add one new submerged combustion vapouriser (SCV). This has not changed the permitted activities in principle.
Have any 'dangerous substances' not identified in the Application Site Condition Report been used or produced as a result of the permitted activities? If yes, list them	No
Checklist of supporting information	See Table S1.1 of Schedule 1 and Schedule 7 of permit EPR/XP3538LD issued April 2021 Appendix A Drawing JAS6495_figure_2_boundary_Rev6JP-A4_layout – Revised site boundary Appendix F

5.0 Measures taken to protect land	
Use records that you collected during the life of the permit to summarise whether pollution prevention measures worked. If you can't, you need to collect land and/or groundwater data to assess whether the land has deteriorated.	
Checklist of supporting information	As per section 9 The areas to be surrendered have not be used for operational or storage activities. These areas remain grassed and display no signs of disturbance. These areas are located outside the site operational areas. See Appendix H for images of areas identified for surrender. The operator has a robust procedure in place for handling substances which are harmful to the environment within operational areas, see Appendix G.

6.0 Pollution incidents that may have had an impact on land, and their remediation	
Summarise any pollution incidents that may have damaged the land. Describe how you investigated and remedied each one. If you can't, you need to collect land and /or groundwater reference data to assess whether the land has deteriorated while you've been there.	
Checklist of supporting information	No records of any pollution incidents or regulatory inspections which have identified pollution risks, see Appendix D for NRW Compliance Assessment Reports

7.0 Soil gas and water quality monitoring (where undertaken)	
Provide details of any soil gas and/or water monitoring you did. Include a summary of the findings. Say whether it shows that the land deteriorated as a result of the permitted activities. If it did, outline how you investigated and remedied this.	
Checklist of supporting information	N/A due to low risk partial surrender of non-operational areas

11 SURRENDER SITE CONDITION REPORT

11.1.1 As this is a low-risk partial surrender application, no ground investigations have been undertaken to inform the application. There have been no identified pollution incidents in the surrender areas and no remediation has been required in order to surrender the areas detailed.

8.0 Decommissioning and removal of pollution risk	
Describe how the site was decommissioned. Demonstrate that all sources of pollution risk have been removed. Describe whether the decommissioning had any impact on the land. Outline how you investigated and remedied this.	
Checklist of supporting information	The areas to be surrendered have not be used for operational or storage activities. These areas remain grassed and display no signs of disturbance. Therefore, no decommissioning is being undertaken, see Appendix F and Appendix H

9.0 Reference data and remediation (where relevant)	
Say whether you had to collect land and/or groundwater data. Or say that you didn't need to because the information from sections 3, 4, 5 and 6 of the Surrender Site Condition Report shows that the land has not deteriorated. If you did collect land and/or groundwater reference data, summarise what this entailed, and what your data found. Say whether the data shows that the condition of the land has deteriorated, or whether the land at the site is in a "satisfactory state". If it isn't, summarise what you did to remedy this. Confirm that the land is now in a "satisfactory state" at surrender.	
Checklist of supporting information	The information from sections 3, 4, 5 and 6 of the Surrender Site Condition Report shows that the land has not been used for any activities and remains grassed and undisturbed, see Appendix F and Appendix H

10.0 Statement of site condition
Using the information from sections 3 to 7, give a statement about the condition of the land at the site. This should confirm that: 1. the permitted activities have stopped 2. decommissioning is complete, and the pollution risk has been removed 3. the land is in a satisfactory condition

11.2 Area to be Surrendered

11.2.1 The Environmental Permit is to be partially surrendered to remove non-operational land in areas as shown on Drawing JAS6495_figure_2_boundary_Rev6JP-A4_layout, Appendix F

11.3 Removal of Pollution Risk

11.3.1 No raw materials, chemicals and paints have been stored in the areas of the site to be surrendered. No operational activities have taken place on these areas, which are grass covered and undisturbed, see Appendix F and Appendix H.

Statement of Site Condition

11.3.2 This Surrender Site Condition Report confirms that the site is in a satisfactory state with regards to the permitted activities undertaken on site.

11.3.3 Ground investigations and intrusive data has not been collected to inform the permit surrender application.

11.3.4 A site walkover was undertaken by the operator to confirm the site is in a satisfactory state. Photographs evidencing this can be found at Appendix F of the main surrender application document**.**

11.3.5 This permit surrender is therefore classified as a low-risk permit surrender. Pre-application discussion has already taken place with the local NRW team. Confirmation is contained in Appendix D of the main surrender application document**.**

11.3.6 This Site Condition Report confirms that permitted activities have not caused any deterioration of the permitted area and it is in a satisfactory state to be surrendered.

12 CONCLUSIONS

12.1.1 South Hook LNG Terminal Company Limited commenced operations at South Hook LNG Terminal in 2009.

12.1.2 Areas of land identified in the application for partial surrender have not been subject to any operational activities or storage of substances which may harm the environment.

12.1.3 The Surrender Site Condition Report confirms that activities within the surrender areas have not caused any discernible deterioration of the permitted area and that it is in a satisfactory condition to be surrendered.

12.1.4 Pre-application discussion has already taken place with the local NRW team. Confirmation is contained in Appendix D of the main surrender application document**.**

REFERENCES

- https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32010L0075&from=EN
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- HSE (2018). COMAH Establishments 2015 Public Information Search. Available online: https://notifications.hse.gov.uk/COMAH2015/Results.aspx
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- RPS (2018). 'Site Condition and Baseline Report', November 2018

Appendices

Appendix A
ENVRONMENTAL PERMIT

Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

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.

The South Hook Liquefied Natural Gas (LNG) Terminal reheats LNG delivered via ships to produce natural gas using a total of sixteen Submerged Combustion Vapouriser (SCV) combustion units, although the site is permitted to use fifteen at any one time. In this technique, natural gas is burnt and the combustion gases are passed through a volume of water. In the warm water is a heat exchanger filled with LNG entering at one end and vapourised to natural gas at the other. Nitrogen is added to the natural gas before the natural gas enters the National Gas Transmission System. The off gas from each SCV passes out to air through a 24 metre stack. The primary pollutants released from combustion of natural gas are oxides of nitrogen and carbon monoxide. Excess water from the SCVs are collected and neutralised before being discharged into the Haven.

The target average natural gas send out capacity is 650 GWh per day, with peak flow rate of 812 GWh per day. Each combustion unit has an thermal input of 32 MWth (average) and 40 MW (peak flow rate) therefore all sixteen aggregate to above 50 MW thermal input. One of the SCVs added in variation V004 is considered a new Medium Combustion Plant as put into operation after 20 December 2018.

The South Hook LNG Terminal is located near Herbrandston, in Pembrokeshire. The installation is within 2 km of Milford Haven Waterway Site of Special Scientific Interest (SSSI) and within 10 km of Limestone Coast of South West Wales Special Area of Conservation (SAC), Pembrokeshire Marine SAC, West Wales Marine SAC, Castlemartin Coast Special Protection Area (SPA) and Skomer, Skokholm and the Seas of Pembrokeshire SPA.

LNG carriers, ships or other vessels 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.

Status log of the permit		
Description	**Date**	**Comments**
Application received 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

BW9816IE		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 a more detailed engineering design
Additional information received	15/11/07	Supporting information regarding discharge of nitrates into the Haven
Variation determined EPR/XP3538LD/V002	16/05/08	Varied permit issued.
Variation 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/V003	14/10/15	Varied and consolidated permit issued in modern condition format
Variation application EPR/XP3538LD/V004 (variation and consolidation)	Duly made 15/12/20	Application to add one new submerged combustion vapouriser (SCV) among other changes to the permit.
Variation determined EPR/XP3538LD/V004	15/04/21	Varied and consolidated permit issued to Operator.

Other Part A installation permits relating to this installation		
Operator	**Permit number**	**Date of issue**
South Hook CHP Limited	EPR/XP3936NS	Issued 21/05/15 Surrendered 23/06/16

End of introductory note

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number
EPR/XP3538LD

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/XP3538LD/V004 authorising

South Hook LNG Terminal Company LTD. ("the operator"),

whose registered office is

South Hook LNG Terminal Company Ltd
Dale Road
Herbrandston
Milford Haven
Pembrokeshire
Wales
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.

Signed	Date
Holly Noble	**14/04/2021**

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.

2.3.5 For the following activities referenced in schedule 1, table S1.1 (A2) the activities shall be operated using the techniques and, in the manner, described in schedule 1, table S1.2A

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 and S3.2.

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 and S3.2

(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 and S3.2 unless otherwise agreed in writing by Natural Resources Wales.

3.5.5 For the following activities referenced in schedule 1, table S1.1 (A2) the first monitoring measurements shall be carried out within four months of the issue date of the permit or the date when the MCP is first put into operation, whichever is later.

3.5.6 For the following activities referenced in schedule 1, table S1.1 (A2) monitoring shall not take place during periods of start up or shut down

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.

4.1.3 For the following activities reference in schedule 1, table S1.1 (A2) the operator shall maintain a record of the type and quantity of fuel used and the total annual hours of operation for each MCP and/or Specified Generator.

4.1.4 For the following activities reference in schedule 1, table S1.1 (A2) the operator shall maintain a record of any events of non-compliance and the measures taken to ensure compliance is restored in the shortest possible time.

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 reference	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity**
A1	S1.1 A(1)(a): Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more	Reheated liquefied natural gas (LNG) to produce natural gas with fifteen combustion units (aggregate to above 50 MWth)	From receipt of LNG to the transfer of natural gas to the National Gas Transmission system.
A2 NGR: SM 87260 06410		Schedule 25A Medium Combustion Plant: 1x submerged combustion vapouriser as detailed in Schedule 8. MCPD Identifier: 44-E6901 H	Includes the sixteen 24 metre stacks and associated devices and systems for controlling combustion conditions and emissions. Includes the operation of the waste water treatment plant and the collection and treatment of surface water. A maximum of fifteen combustion units to operate at any one time.
Directly Associated Activity			
A3	Directly associated activity	Receipt and storage of LNG	From receipt of LNG, including flaring and venting, to dispatch for use

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, B2.71, 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 XP3538LD/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

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Variation application EPR/XP3538LD/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 XP3538LD Application Form Part C3 – Section 3 Operating Techniques Table 3 – Technical Standards	12/03/14
Variation application EPR/XP3538LD/V004	Document reference: Application to Vary Environmental Permit Reference EPR/XP3538LD – Supporting Information including all appendices	02/10/20
	Document reference: Application to Vary Environmental Permit Reference EPR/XP3538LD – Post Site Capacity Test Addendum	15/12/20

Table S1.2A Operating techniques for Medium Combustion Plant as detailed in Schedule 8
Description
Each MCP must be operated in accordance with the manufacturer's instructions and records must be made and retained to demonstrate this
The operator must keep periods of start-up and shut-down of each MCP as short as possible
There must be no persistent emission of 'dark smoke' as defined in section 3(1) of the Clean Air Act 1993

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**
-	-

Schedule 3 – Emissions and monitoring

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

Emission point ref. & location	Source	Parameter	Limit (including unit) – 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 NRW)
A1 – A8 A11 – A17 [Points A1 – A8 and A11 – A17 as detailed on site plan in Schedule 7)	Submerged Combustion Vaporisers	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	107 mg/m^3	Daily mean (1 SCV in Phase 1 and 1 SCV in Phase 2 only)	Continuous (1 SCV in Phase 1 and 1 SCV in Phase 2 only)	EN 15267-3 In respect of QAL 1 only BS EN 14181 (1 SCV in Phase 1 and 1 SCV in Phase 2 only)
			107 mg/m^3	One hour sample	Quarterly	BS EN 14792
		Carbon monoxide	No limit set	Not specified	Quarterly	BS EN 15058
A18 [Point A18 as detailed on site plan in Schedule 7]	Submerged Combustion Vaporiser MCPD Indentifier 44-E6901 H	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	100 mg/Nm^3	Periodic	Quarterly	BS EN 14792
		Carbon monoxide	No limit set	Periodic	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	-	-	-	-	-

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**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 NRW)**
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	-	-	-	-	-
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	-	-	-	-	-

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**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 NRW)**
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	-	-	-	-	-
A144 – A145	LNG Export analysers – LNG Sulphur Chromatograph analysers chromatograph- Exhaust	-	-	-	-	-
A146 [Point A146 as detailed on site plan in Schedule 7]	Combustion emissions from temporary Portable Air Compressor fuelled on diesel – instrument air compressor / drier skid	-	-	-	-	-

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (incl. unit)**	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
W1 on site plan in Schedule 7 (or as agreed with NRW)	Site drainage (surface and ground-water)	pH	6 – 9	Maximum	Daily	BS ISO 10523
		Turbidity	No limit set	Not specified	Daily	BS EN ISO 7027
		Oil and grease	None visible	Spot sample	Daily	Visual Check
		TOC	No limit set	Spot sample	Weekly	BS EN 1484
		List 2 metals (copper, zinc and iron only)	No limit set	Maximum	Monthly	APHA 3120B
W2 on site plan in Schedule 7	Process effluents	Flow	3500 m^3 per day	24 hour period aligned with gas day	Continuous	Flow meter
			164 m^3 per hour	Maximum		
		pH	6 – 9	Daily maximum	Continuous	BS ISO 10523
		Nitrates as N	50 mg/L	Spot sample	Daily	APHA 4500-NO3-B
			100 kgN/day	Spot sample		
			50 kgN/day annual mean	Annual average		
		Oil and grease	None visible	Spot sample	Daily	Visual check
		Total Residual Oxidant (As Total Free Chlorine)	0.1 mg/L	Spot sample	Monthly	Hach DPD Chlorine test kit for Total Free Chlorine
		Biological Oxygen Demand (BOD)	No limit set	Spot sample	Monthly	HMSO BOD5 II
		Temperature	30 °C	Daily maximum	Continuous	Standard thermocouple

Table S3.3 Process monitoring requirements				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Natural gas consumption	MWh	Continuous	Flow meter	-
Operating hours – LNG only	Hours	Continuous	-	-

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 – A8 A11 – A18	Every 12 months	1 January
Emissions to water Parameters as required by condition 3.5.1	W1, W2	Every 6 months	1 January, 1 July

Table S4.2: Annual production/treatment

Parameter	Units
Natural gas produced	tonnes

Table S4.3 Performance parameters

Parameter	Frequency of assessment	Units
Water usage	Annually	m^3
Energy usage	Annually	MWh
Gas 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	15/04/21
Water	Form water 1 or other form as agreed in writing by Natural Resources Wales	15/04/21
Water usage	Form water usage 1 or other form as agreed in writing by Natural Resources Wales	14/10/15
Energy usage	Form energy 1 or other form as agreed in writing by Natural Resources Wales	14/10/15
Other performance indicators	Form performance 1 or other form as agreed in writing by Natural Resources Wales	15/04/21

Schedule 5 - Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any activity that gives rise to an incident or accident which significantly affects or may significantly affect the environment	
To be notified Immediately	
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 permit condition	
To be notified immediately	
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**

(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:	
To be notified immediately	
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.

"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 Commité Européen de Normalisation

"Combustion Technical Guidance Note" means IPPC Sector Guidance Note Combustion Activities, version 2.03 dated 27th 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 NOx 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

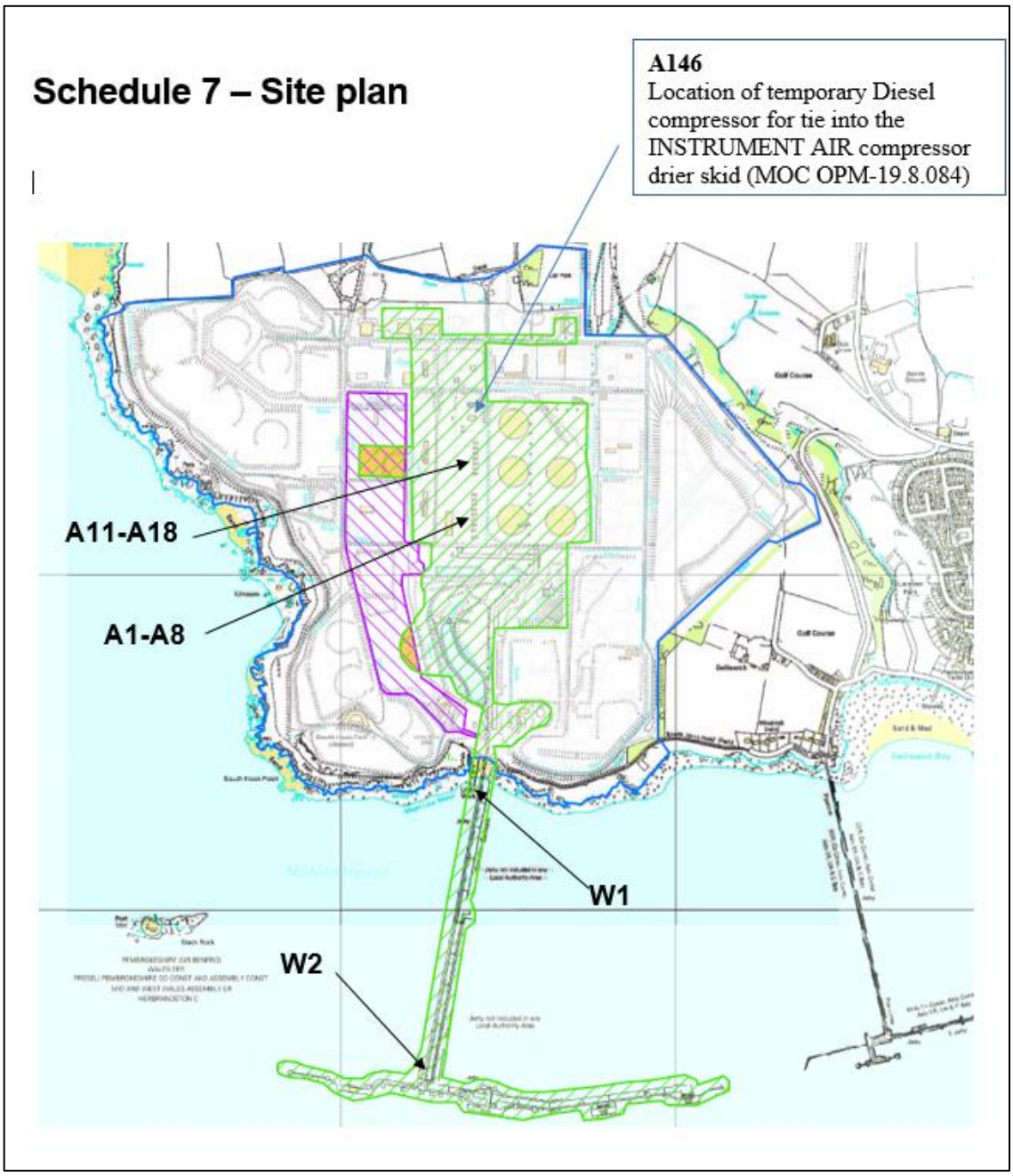
"year" means calendar year ending 31 December, aligned to gas days

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 273 K, 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



Schedule 8 – Annex 1 of MCPD

1. Rated thermal input (MW) of the medium combustion plant.	40 MWth (peak) 32 MWth (average)
2. Type of the medium combustion plant (diesel engine, gas turbine, dual fuel engine, other engine or other medium combustion plant).	Other medium combustion plant
3. Type and share of fuels used according to the fuel categories laid down in Annex II.	Natural gas 100 %
4. Date of the start of the operation of the medium combustion plant or, where the exact date of the start of the operation is unknown, proof of the fact that the operation started before 20 December 2018.	Currently not operational, TBC
5. Sector of activity of the medium combustion plant or the facility in which it is applied (NACE code).	D35.21
6. Expected number of annual operating hours of the medium combustion plant and average load in use.	8760 32 MWth average load in use
7. Where the option of exemption under Article 6(3) or Article 6(8) is used, a declaration signed by the operator that the medium combustion plant will not be operated more than the number of hours referred to in those paragraphs.	Not applicable
8. Name and registered office of the operator and, in the case of stationary medium combustion plants, the address where the plant is located.	Operator: South Hook LNG Terminal Company LTD Dale Road Herbrandston Milford Haven Pembrokeshire Wales SA73 3SU MCP Address: South Hook LNG Terminal Dale Road Herbrandston Milford Haven Pembrokeshire Wales SA73 3SU

END OF PERMIT

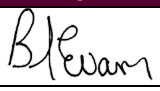
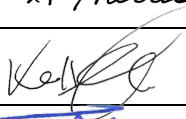
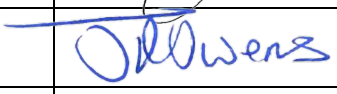
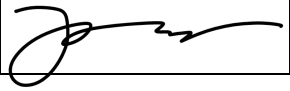
Appendix B
ENVIRONMENTAL MANAGEMENT SYSTEM

Environmental Management Manual

Criticality:	**MEDIUM**		
Document No.:	**SM.06C.01.000.00**		
System Administrator			
Title:	Snr. Environmental Engineer.	Name:	Shane Evans
System Owner			
Title:	Technical Services Manager	Name:	Zoltan Hazos

Rev. No.	Effective Date	Description	Revalidation Date
08	11/02/2021	SHEMS Quality Journey Project	11/02/2024

Approvals

Action	Name	Position	Signature	Date
Issued by	Shane Evans	Snr. Environmental Engineer.		10/02/2021
Reviewed by	Alana Harrison	Quality Technician		08/02/2021
Accepted by	Ken Hurley	Operations Manager		08/02/2021
Accepted by	Julian Owens	Business Services Manager		10/02/21
Approved by	Zoltan Hazos	Technical Services Manager		11/02/2021

Revision History

Rev. No.	Date	Description
01	10/04/2015	First issue of SHEMS System 6-C.
02	30/10/2015	Second issue – updated to reflect varied PERMIT UK W IN 11929 v14 issued 25 February 2015 (minor amendments to add fuel F5, acetylene), move to SHEMS and to accommodate the Energy Savings Opportunity Scheme ESOS 2014.
03	21/12/2015	Review of Appendix 3. Alarm Limits
04	01/03/2016	Conservation Trustee changed from HSSEQ Manager to General Manager, System Owner changed to Technical Services Manager.
05	July 2017	Review & update to reflect current regulatory requirements, the EPR Regulations Environmental Permit EPR/XP3538LD issued on 14 October 2015, current & best practices, and continual improvement.
06	12/06/2019	• Review and update to include requirements of the 2019 NIMs (National Implementation Measures) cross-EU data collection exercise 2019 for Phase 4 of the EU ETS. • Review to reflect organisational changes, redistribution of responsibilities from SHEMS Technician (Environment and Regulatory) to Senior Environmental Engineer (SEE); & waste with Business Services Manager (BSM) and Health & Safety Officer (HSO) • Review & update to reflect current regulatory requirements, current & best practices, and continual improvement.
07	November 2019	Clarification amendments: • NRW Contact details updated Minor clarifications in 3.17 EU ETS Greenhouse Gas Monitoring and Reporting
08	11/02/2020	SHEMS Quality Journey Project - Review and update by Snr. Environmental Engineer: 3.17 EU ETS Greenhouse Gas Monitoring and Reporting updated for the Monitoring Methodology Plan (MMP) and Free Allocation Regulation (FAR); SHEMS Quality Journey

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Appendices

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Tables

1. Overview

1.1 Purpose

The purpose of this manual is to describe the procedures used by South Hook LNG (SHLNG) to implement, maintain and continually improve its environmental management provisions, including the following:

- The identification, evaluation and management of the environmental aspects of SHLNG's operational activities.
- The identification of legal and other regulatory requirements.
- The training, communication and operational controls established to prevent and/or minimise any adverse impact upon the environment.
- The monitoring and assessment of SHLNG's environmental provisions though internal and external audits.
- Demonstrate compliance with condition 1.1 of Environmental Permit EPR/XP3538LD signed on 14 October 2015 (the 'EPR Environmental Permit') that requires the Company to manage and operate the activities 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, via The Company's Safety Health Environment Management system (SHEMS)
- Demonstrate compliance with conditions of the Greenhouse Gas Emissions Permit (the 'GHG permit', Permit number UK-W-IN-11929, and the provisions of the EU ETS as amended
- Maintaining continual improvement as a strategic objective.

This manual defines the processes required to ensure SHLNG compliance with its Environmental legal and other requirements.

1.2 Scope

This manual applies to all SHLNG personnel involved in managing or performing any activities that could have a potential impact upon the environment and/or legal compliance.

1.3 Hazards and Mitigations

The key hazards and relevant mitigations for this document are listed in the table below:

Hazards	Mitigations
• Breach of permit/ Significant adverse environmental harm/ • Considerable negative local media attention	• This Environmental Management Manual sets out the actions required to help ensure compliance with environmental permits, legal and other requirements and industry best practice; to prevent and/ or minimise potential significant adverse environmental harm from the permitted operations; and to protect the reputation of the Company; in support of continued safe reliable compliant operations.

Table 1. Hazards and Mitigations

1.4 Applicable Laws and Regulatory Requirements

This manual serves to address environmental conditions specified in the EPR Environmental Permit (Environmental Permit), the Greenhouse *Gas Emissions (GHG) Permit, the Site Lease Agreement* (where appropriate) and the environmental provisions of the *Planning Permissions* issued by Pembrokeshire County Council and Pembrokeshire Coast National Park Authority, and legal & other requirements defined in the *Environmental Register of Legal and Other Requirements (Ref. Form* FM.06C.01.000.11).

2. Responsibilities

Note: *There are 'Additional Responsibilities' to some of the 'Processes and Procedures' sections listed within this Manual. Please refer to the Table of Contents for visibility of these sections.*

2.1 General Manager

The General Manager will be accountable for the following:

- Performing the role of Conservation Trustee for the Nature Conservation Area.
- Overall environmental performance and compliance of the permitted installation with legal and other requirements

2.2 Technical Services Manager (System Owner)

The Technical Services Manager is accountable for the following:

- Is the System Owner, overall responsibility and authority to ensure the implementation and maintenance of the system 6-C
- Is accountable for compliance with the SHLNG Terminal environmental permits and all applicable legal and other environmental requirements.
- Notifying the General Manager of any significant adverse consequences of any proposed new or amended law or regulation that may affect SHLNG's environmental provisions.
- Reporting any non-compliance relating to SHLNG's environmental provisions to the General Manager.
- Reviewing and ensuring the adequacy of expertise and resources, competence, training and awareness relating to SHLNG's environmental provisions.
- Approving reviews and updates to the Register of Legal and Other Requirements, the Environmental Aspects Register and the Environmental Management Programme (of objectives and targets), and providing evidence of such approval.
- Ensuring that adequate resources are available to fulfil the necessary roles, responsibilities, competence, training and awareness to implement the SHLNG EMS.
- Ensuring that all relevant personnel receive job-specific training on the applicable procedures throughout this Manual.
- Ensuring compliance with the SHLNG Terminal environmental permits and all applicable legal and other environmental requirements.
- Ensuring that this Manual is periodically reviewed to ensure it remains up-to-date and fit for purpose.

2.3 Senior Environmental Engineer (System Administrator)

The Senior Environmental Engineer is responsible for the following:

- Is the System Administrator
- Ensuring compliance with the SHLNG Terminal environmental permits and all applicable legal and other environmental requirements.

- Is the MCERTS Responsible Person, responsible for the implementation and maintenance of the MCERTS Management System elements (including clauses 4.4 to 4.16 of 'the Minimum Requirements v4')
- Is the Company's nominated 'Energy Champion'
- Providing advice and guidance relating to any aspect of the environmental legislation, permits, legal and other requirements, as required.
- Ensuring that the Environmental Aspects Register, Register of Legal and Other Requirements, and the Environmental Compliance Plan and Environmental Management Programme (of objectives and targets) are periodically reviewed and maintained to ensure they remain up-to-date.
- Ensuring that required environmental documents and records are correctly controlled and managed.
- Reporting any identified non-compliance relating to SHLNG's environmental provisions to the Technical Services Manager and on approval to Regulator as required.
- Monitoring any corrective actions relating to any non-compliance of SHLNG's environmental provisions to ensure they are closed out in a timely manner.
- Submission of emissions and other reports to Regulator, as required.
- The day-to-day implementation of this Manual.
- Resolving any queries relating to the implementation of this Manual.
- Ensuring that any new or amended law or regulation applicable to SHLNG's environmental provisions is reported to the Technical Services Manager.

2.4 Operations Manager

The Operations Manager is responsible for the following:

- The overall operation and maintenance of the Terminal, including the oversight and management control of process variables and emissions
- Ensuring the overall compliance of Terminal operations (Process and Maintenance), including operational oversight and control and compliance with SHLNG's environmental permits to operate.
- Ensuring that personnel implement all relevant operational procedures, work instructions and guidance, including those directly associated with the SHLNG system 6-C.
- Ensuring appropriate and timely communications and notifications on operational matters from operations and maintenance personnel to the Senior Environmental Engineer, as required

2.5 Process Superintendent, Process Day Supervisor, Process Supervisors and Process Operations personnel

The Process Operations personnel are responsible for the following:

- Implementation of compliant of Terminal operations, including operational oversight and control and compliance with SHLNG's environmental permits to operate.
- Implementation of all relevant operational procedures, work instructions and guidance, including those directly associated with the SHLNG system 6-C.
- Making appropriate and timely communications and notifications on operational matters to the Senior Environmental Engineer, as required

2.6 CCR Operators

CCR Operators will be responsible for the following:

- Oversight and management control of process variables and emissions. Monitoring status of equipment and associated continuous monitoring systems, for example fuel gas (flow, density, temperature, pressure), send out gas export metering (quality and quantity), when boil off gas is used as a fuel, when flare pilot usage commences and ends, and when flaring commences and ends, to ensure continuous reliable operations, as detailed within this procedure.
- Informing the Process Supervisor immediately of any event or condition, such as statutory environmental meter failure, malfunction, breakdown, or non-conformance with calibration requirements, or any other problem with the fuel gas metering and send out gas export metering and gas chromatographs, and when boil off gas is used as a fuel, that may affect the EU ETS monitoring and reporting process.
- Performing the actions assigned in the SHLNG Operational Guidance on Continuous Environmental Monitoring, and the sections on Environmental Controls; Monitoring and Reporting & Notification.

2.7 Business Services Manager

The Business Services Manager is responsible for the following:

- Is responsible for ensuring that business and facilities management personnel implement and follow all specified requirements of this Environment Management System
- Is Contract Owner for the General Services Contract, which includes the provision of legally compliant waste management services
- Is responsible for ensuring that General Services staff undertake routine periodic inspections (at least monthly) of key operational areas and recording the results in the SHLNG Monthly Environmental Checklist filed on the LAN.

2.8 Business Services Coordinator

The Business Services Coordinator is responsible for the following:

- Is the Contract Manager for the General Services Contract, which includes the provision of legally compliant waste management services.

2.9 Integrated Control & Safety System (ICSS) Engineer

The ICSS Engineer is responsible for the following:

- Operation and maintenance of the Plant information Management System (PIMS), including Exaquantum database, ICSS DCS engineering and related systems.

2.10 All Personnel

All Personnel are responsible for the following:

- Contributing to the implementation of this system, as required.
- Participating in all training assigned, as required.

3. Processes and Procedures

3.1 Environmental/ Quality/ Major Accident Prevention Policies

SHLNG's environmental policy

In compliance with condition 1.1 of EPR Environmental Permit, SHLNG's environmental policy is stated in the SHLNG *Safety, Security, Health and Environmental Policy (PY-000-00-01).* The policy is displayed as required and communicated to all relevant personnel when joining SHLNG.

The policy is also available to the public and other interested parties via the SHLNG website at:

https://www.southhooklng.com/operations/health-and-safety/

In addition:

- SHLNG's Major Accident Prevention Policy is stated in document PY.000.00.02

The policies above are available to employees via I:\Document Library\Policies

3.2 Objectives Targets and Environmental Management Programme (EMP)

Review of the Environmental Management Programme (EMP)

Objectives and targets associated with the system 6C are developed in accordance with the SHLNG *Safety, Security, Health and Environmental Policy (PY-000-00-01),* identified significant environmental aspects, compliance with applicable legal requirements and other appropriate aspects of SHLNG's operations.

Objectives and targets, the responsibilities of designated personnel for their implementation and the means and period by which they are to be achieved are detailed within the *Environmental Management Programme (EMP) Form FM.06C.01.000.09.*

The Environmental Management Programme (EMP) is periodically reviewed (target is annually) by the Senior Environmental Engineer and approved by the Technical Services Manager, for the implementation of the objectives and targets. This includes review of the Inventory of Opportunities for Improvement, the status of the objectives and targets from the previous period and the establishment of new/revised objectives and targets where necessary for the subsequent period.

3.3 Resources, Responsibility and Authority

Commitment to human, technological and financial resources

In accordance with the SHLNG Safety, Security, Health and Environmental Policy (PY-000-00-01) and SHEMS System 1A on Leadership, SHLNG management is committed to ensuring the availability of human, technological and financial resources to implement, maintain and continually improve the SHEMS, in addition to the requirements needed to ensure compliance with the environmental permits and applicable legal and other requirements. This is in compliance with condition 1.1 of the EPR Environmental Permit.

The Technical Services Manager has the overall responsibility and authority to ensure the implementation and maintenance of the system 6-C and reports performance routinely to the SHLNG Senior Management Team (SMT). For the purposes of the EMS/ System 6-C, the Technical Services Manager, supported by the Senior Environmental Engineer, will act as the Environmental Management Representative.

The Senior Environmental Engineer is responsible for the majority of routine tasks associated with administration of the system 6-C, as defined within each relevant environmental section/ procedure.

3.4 Competence, Training and Awareness

Training and competence procedures

SHLNG has a defined Competence Assurance System (SHEMS System 5-A), that ensures all personnel, including contractors, performing tasks that could have an adverse effect upon environmental are competent, adequately trained and fully aware of their responsibilities.

Please refer to the following SHEMS Systems:

- System 5-A Competence Assurance.
- System 5-B Personnel Safety Management.

The above is in compliance with condition 1.1 of the EPR Environmental Permit.

3.5 Operations - including permitted activities, operating techniques and controls

The EPR Environmental Permit requirements are specified in the following permit conditions:

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

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 the permit.

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.

2.3.1 (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.

Control of activities associated environmental aspects

SHLNG has established SHEMS System 6-A – Operations and Maintenance Procedures, which defines and controls all activities associated with SHLNG's environmental aspects as to minimise any adverse effects on the environmental. For further information please refer to SHEMS System 6-A.

3.6 Emergency Preparedness and Response

Procedures and Accident Management Plan

SHLNG has established SHEMS System 9-A Incident Management, which defines the required actions and notifications. Please refer to *SM.09A.01.000.00_Incident Management Manual* for further details.

SHLNG has established SHEMS System 10-A, Emergency Preparedness & Community Awareness, which defines the required processes and procedures that are to be followed. Please refer to SHEMS System 10A Emergency Preparedness and Community Awareness for details.

3.7 Performance Measurement and Monitoring

Environmental Compliance Plan

Each obligation or requirement is included as a line item in the Compliance Plan, which includes the associated timelines.

The Environmental Compliance Plan is updated by the Senior Environmental Engineer on a periodic routine basis (at least annually) to ensure that it remains up-to-date and reviewed by the Senior Environmental Engineer (target is annually) to monitor and steward compliance with legal and regulatory requirements relating to SHLNG's environmental provisions. The Compliance plan is kept on the LAN.

Monitoring and inspection

Process (operational) and Maintenance personnel have continual operational oversight and control and conduct routine checks and inspections of plant and control systems that are considered environmentally sensitive to ensure they are functioning correctly.

General Services personnel perform periodic routine inspection of the Terminal that includes waste management and pollution prevention infrastructure, and the surface water drainage systems, in accordance with the Site Protection and Monitoring Programme (SPMP), see below.

Management review

The performance of SHLNG's environmental provisions will also be measured against objectives established as part of the following:

- Financial and Operating Reports.
- Quarterly Performance Review Reports.
- Monthly Board Reports.
- Individual Performance Review meetings.
- Annual Reviews of SHEMS systems (AR's)

Performance indicators are set in the Annual Technical Services Department Business Plan for review and monitoring by the Senior Management Team.

This procedure is fully described in the SHLNG *Company Business Planning & Performance Measurement & Management Procedure (FR-PE-009).*

Communications

Detailed procedures regarding communication and reporting of SHLNG's environmental provisions to regulatory and other external authorities are provided in this manual.

3.8 Identification of Legal and other Regulatory Requirements

Purpose

The purpose of this section is to describe how SHLNG will identify all applicable legal and other requirements relating to the environmental aspects of its operations, and determine which of these requirements should receive priority focus as part of SHLNG's environmental management provisions.

Responsibilities

The Senior Environmental Engineer is responsible for the following:

- Reviewing the Environmental 'Register of Legal and Other Requirements' (Ref. Form FM.06C.01.000.11) on a period basis (at least every 3 years) to ensure that it remains up-to-date and all requirements are captured.
- Reviewing the Legal Register against the Environmental Aspects Register to ensure that all requirements are captured.
- Reviewing the Compliance Plan periodically (at least annually) to ensure that SHLNG is operating in an environmentally compliant manner

Environmental Register of Legal and Other Requirements

SHLNG has established procedures to identify legal and other regulatory requirements that apply to its operations and determine how such requirements relate to its environmental aspects. Such requirements include national and international legislation, laws and regulations, permits, licences and consents, and obligations and agreements that are applicable to SHLNG.

Identified requirements are recorded in the Environmental Register of Legal and Other Requirements (Ref. *Form* FM.06C.01.000.11), which is maintained by the Senior Environmental Engineer and periodically reviewed (target is annually) and approved by the Technical Services Manager to ensure that it remains accurate and comprehensive, that all necessary actions are identified and that responsible parties and timelines are assigned.

Compliance with the Environmental Register of Legal and Other Requirements is monitored via the SHEMS System, including the Environmental Manual and Compliance Plan.

Procedures relating to legal and other requirements of SHLNG's operations are provided in the SHLNG User Guide 'Identifying Legal and other Regulatory Requirements' (Ref. *Form* FM.06C.01.000.11/User Guide).

Control of obligations

SHLNG has obligations arising from a significant number of legal and contractual requirements contained in the following key documents:

- The EPR Environmental Permit
- GHG Permit
- Site Lease Agreement
- Jetty sub-lease Agreement
- Planning Permits
- Town & Country Planning Act (Section 106)
- Coastal Protection Act Section 34 licence
- Site Protection and Monitoring Programme (SPMP)
- All obligations from the above documents (i.e. permits, leases and contracts) are listed in the Compliance Plan. Which identifies the individuals responsible for implementing and completing each obligation.

Communication of roles and responsibility

Each obligation is assigned a single responsible person to ensure accountability; however, a number of individuals may be involved in the implementation of any one obligation.

The Technical Services Manager will ensure that all those involved in the implementation of any obligation are fully aware of their roles and responsibilities.

Incidents of non-compliance

In the event of any identified non-compliance, the Senior Environmental Engineer, will notify the Technical Services Manager who, if required, will then ensure that the General Manager is notified accordingly.

All identified material non-compliances are reported to regulatory agencies, where required by law.

Continual review of laws and regulations

The Senior Environmental Engineer will continually review new and amended laws and regulations to identify those that are applicable to the environmental aspects of SHLNG’s operations and evaluating the impact of any such requirements.

The Senior Environmental Engineer ensures that any new or amended laws or regulations that are deemed applicable to SHLNG are added to the Environmental Register of Legal and Other Requirements.

Should any proposed new or amended law or regulation be considered to have a significant adverse effect upon SHLNG's operations, the Senior Environmental Engineer will inform the Technical Services Manager as soon as possible.

3.9 Identification and Categorisation of Environmental Aspects and Impacts

Purpose

The purpose of this section to describe how SHLNG will identify the environmental aspects associated with its operations and determine which aspects could have a significant impact upon the environment, and thus ensure that they receive priority focus as part of SHLNG's environmental management provisions.

Responsibilities

The Senior Environmental Engineer is responsible for reviewing the Environmental Aspects Register (Ref. Form *FM.06C.01.000.10*) on a period basis (target is annually) to ensure that it remains current and accurately reflects SHLNG's operational activities.

Identification of aspects that could significantly affect the environment

SHLNG has established procedures to identify the environmental aspects of its operations and determine those aspects that have, or could have, a significant impact upon the environment and which, therefore, require priority focus.

The procedures address all inputs and outputs, both intentional and unintentional, associated with SHLNG's operations; including normal and abnormal operating conditions and reasonable foreseeable emergencies.

For each identified environmental aspect, details of the cause/effect relationship between the activity and its effect on the environment, and details of the relevant regulatory control, if applicable, are added to the Environmental Aspects Register. This register is periodically maintained by the Senior Environmental Engineer and approved by the Technical Services Manager.

The significance of each environmental aspect is evaluated by assessing whether the impact upon the environmental is controlled by legislation and then assigning the aspect a corresponding risk score.

All significant environmental aspects are subject to detection, prevention, control and mitigation measures established during the design of the Terminal and/or as part of on-going operation and maintenance activities. References to all such measures are provided in the Environmental Aspects Register (Ref. Form *FM.06C.01.000.10*).

Compliance Plan and User Guide

Compliance with the Environmental Aspects Register is monitored via the SHLNG Management System, including the environmental procedures and the Environmental Compliance Plan.

Procedures relating to the environmental aspects of SHLNG's operations are provided in the SHLNG's User Guide 'Identification and Categorisation of Environmental Aspects and Impacts' (Ref. *Form* FM.06C.01.000.10/User Guide).

3.10 Environmental Controls

Purpose

The purpose of this section is to describe the operational controls in place to ensure SHLNG complies with the terms of the environmental permits to operate and to minimise any environmental impact. This document specifically describes how SHLNG will comply with emission limit values (ELVs).

The objectives of this section are as follows:

- To describe the operational controls in place at SHLNG to ensure that emissions are controlled, pollution prevented, adverse environmental impacts are minimised, beneficial environmental aspects are enhanced and compliance with applicable permits and other legal requirements is maintained.
- To identify the procedures that provide further detail on Terminal design features or operations and maintenance techniques employed to enable SHLNG to comply with emission limit values (ELVs).

3.10.1 Overview of Environmental Controls

Control and mitigation measures

All operations and activities associated with SHLNG's environmental aspects are controlled to ensure they are carried out under specified conditions and in such a manner as to minimise adverse environmental impact(s) and comply with the requirements of the EPR Environmental Permit to operate the installation.

Control is achieved through design measures inherent to the design of the Terminal, and the implementation of prevention, early detection, control and mitigation measures, as part of on-going operation and maintenance activities.

Operational and Maintenance procedures

Procedures and Standard Operating Procedures (SOPs) are used to control normal operating conditions, start-up and shutdown, reasonably foreseeable abnormal operating conditions and emergencies. These include where deemed necessary written step-by-step instructions for performing operations/activities in accordance with defined criteria. Activities are also supported by work instructions and guidance. These documents also contain additional information relevant to performing the activity (i.e. cautions, notes, warnings, technical information).

Certain operating procedures are vital to preventing an event or incident, such as an uncontrolled emission, fire or explosion, which could pose serious danger to people, the environment or property. These operating procedures are defined as high criticality and have been the subject of risk assessment.

The Maintenance Section also uses procedures and work instructions for performing tasks relating to testing, inspections and maintaining equipment. These procedures and instructions control preventive maintenance during normal operating conditions, and reactive maintenance as necessary following equipment breakdown, upset operating conditions and emergencies.

Certain maintenance procedures, vital to preventing an event or incident, are defined as high criticality, see SHEMS System 6A Operating & Maintenance procedures.

Operational oversight and control

As described in the section of this manual on Environmental Monitoring, the Environmental Screen in the Distributed Control System (DCS) provides for real time operational oversight and control and contains relevant alarms set points as specified in the SHLNG Environmental Controls Section This is further enhanced by automatic generation and circulation of routine reports to key personnel, including:

- Environmental CEMS Screen in DCS Daily Report.
- QAL 3 Weekly Report (NOx analysers Zero and Span calibration checks).
- Process Safety Performance Indicators (PSPI) Daily Report

Incident investigations and reporting

Activities and events that constitute an environmental incident are defined in the SHEMS 9-A Incident Management Manual SM.09A.01.000.00.

The following environmental incidents are considered within this procedure:

- A breach of permit condition including breach of an ELV or failure to monitor continuously, flaring or venting.
- A fugitive emission.
- A spillage that results in a significant fugitive release (e.g. diesel or sodium hydroxide - as described in the SHLNG Spill Control Procedure (SHEMS System 10-A, Emergency Preparedness & Community Awareness).
- Detection of any malfunction, breakdown or failure of plant or technique, or any accident that has caused, is causing, or has the potential to cause significant pollution.
- All incidents are internally notified, investigated and reported in accordance with the electronic reporting system and the following SHLNG guidance and procedures:
- SHLNG Operational Guidance on Continuous Environmental Monitoring (available on the i:Drive and Operator Control Panel in the Central Control Room CCR).
- SHLNG Incident Management Manual (SM.09A.01.000.00)

For discontinuous monitoring (DCM), the Laboratory Monitoring Contractor (LMC) immediately notifies the CCR of any ELV breaches and the Process Supervisor immediately initiates an investigation. During normal office hours, the Process Supervisor notifies the Senior Environmental Engineer of all environmental incidents, who in turn notifies the Technical Services Manager, as described in the SHLNG Environmental Reporting and Notification section. In accordance with the requirements of the EPR Environmental Permit, where required incidents (as listed above) are notified to Natural Resources Wales by the Senior Environmental Engineer, as described in the SHLNG Environmental Reporting and Notification section.

3.10.2 Additional Responsibilities

Technical Services Manager

The Technical Services Manager will be responsible for the following:

- Providing advice and support to the Operations Department and the Technical Services Department on engineering matters, as necessary and relevant to compliance with environmental permits.
- Proving data and information to the Operations Department and the Technical Services Department on matters relating to environmental compliance, such as, quantifying emissions to the environment, where it is agreed and necessary for such data to be calculated.
- Operation and Maintenance of the Site Drainage Systems Procedure (PE.06C.01.001.00) under this SHEMS system 6C.
- Ensuring that all changes & modifications that could potentially affect environmental compliance or performance are screened by the Senior Environmental Engineer, to ensure continued compliance with permits & conformance with 6-C, via the Management of Change (MOC) process (SHEMS 7-A).

- Technical Services Manager/ Business Services Manager will ensure that all equipment (including HVAC equipment) is labelled, inspected and maintained and appropriate records placed on file for reference purposes, as detailed in the SHLNG Asset Life Plan requirements

Senior Environmental Engineer

The Senior Environmental Engineer is responsible for the following:

- Providing input, as necessary, to maintain and update environmental control requirements.
- Attending the location of reported spillages, determine appropriate tier and oversee implementation of spill response, as required.
- Maintaining and updating environmental aspects of the 10-A Emergency Response Procedure
- Providing advice and support on matters relating to compliance with environmental permits.
- Assessing environmental compliance, and preparing and compiling reports for the Technical Services Manager, with the assistance of Operations Department, as necessary.
- Screening all changes & modifications that could potentially affect environmental compliance or performance, to ensure continued compliance with permits & conformance with 6C, via the Management of Change (MOC) process (SHEMS 7-A).

Operations Manager

The Operations Manager is responsible for the following:

- Ensuring the overall compliance of Terminal operations, including compliance with SHLNG's environmental permits to operate.
- Ensuring that SHLNG employs the best available techniques (BAT) and works to these exacting standards.
- Ensuring timely attendance by relevant personnel at the location of reported spillages, determine appropriate tier and oversee implementation of spill response, as described in the SHLNG Spill Control Procedure (SHEMS System 10-A, Emergency Preparedness & Community Awareness).
- Ensuring that personnel implement all relevant operational procedures, work instructions and guidance directly associated with this system

Process Superintendent

The Process Superintendent is responsible for the following:

- Providing support on operational matters relating to compliance with environmental permits.
- Ensuring continual operational oversight, monitoring and assessment of operating parameters to ensure that the Terminal is operated in compliance with the terms of the applicable environmental permits.
- Ensuring that any operational matters relating to non-compliance with the applicable environmental permits, such as fuel gas and emissions monitoring, are reported to the Technical Services Department in a timely manner to timescales agreed, and actions are implemented in the SHLNG Operational Guidance on Continuous Environmental Monitoring, and the sections of this manual (below) on Environmental Controls; Monitoring and Reporting & Notification.

Maintenance Superintendent

- The Maintenance Superintendent is responsible for:
- Continual development and implementation of the planned preventative maintenance (PM) strategy, and ensuring the PM programme, breakdown, response and calibration schedules are fit for purpose and meet all legal requirements. This includes the 'Statutory Environmental Meters', including the MCERTS continuous emission monitoring systems and MCERTS effluent flow meters.
- Ensuring review of the list of 'Statutory Environmental Meters' on a period basis (at least every year) to ensure that it remains current and accurately reflects SHLNG's operational activities.

- Safe, proper and where appropriate approved maintenance and handling of ozone depleting substances (including HVAC servicing, inspections and labelling).
- Ensuring that all equipment containing SF6 is labelled, that only certified personnel service this equipment and that gas recovery is only performed by certified personnel during maintenance and repair and before disposal of the equipment, as detailed in the SHLNG Asset Life Plan requirements.
-
- Reporting matters relating to environmental compliance to Senior Environmental Engineer, as required.
- Maintenance tasks in accordance with SHEMS, and/ or as otherwise directed. Maintaining all relevant records to demonstrate traceable compliance.

I&C Telecoms Supervisor

The I&C Telecoms Supervisor is responsible for the following:

- Is responsible for ensuring the undertaking of the programme of planned preventative maintenance (PM), breakdown response and calibration schedules.

Maintenance Personnel

The Maintenance Personnel are responsible for the following:

- Undertaking maintenance tasks in accordance with SHEMS, and /or as otherwise directed
- Reporting matters relating to environmental compliance to Maintenance Superintendent, as required

Business Services Manager

Business Services Manager is responsible for the following:

- Ensuring that facilities management personnel implement all relevant legal requirements, procedures, work instructions and guidance etc., including the following:
- Safe, proper and where appropriate approved use of herbicides and pesticides (including on or near water).
- Technical Services Manager/ Business Services Manager will ensure that all equipment (including HVAC equipment) is labelled, inspected and maintained and appropriate records placed on file for reference purposes, as detailed in the SHLNG Asset Life Plan requirements
- Contract Owner for the General Services Contract which includes the provision of legally compliant waste management services as outlined in SHEMS System 6-C Environmental Management manual.

3.10.3 General Requirements and Site Rules

Development of land

All personnel must comply at all times with the all SHLNG site rules and management systems and must not disturb any flora, fauna or other wildlife.

No area of land on site may be developed without the prior written permission of the Technical Services Manager. Personnel may not erect, install or construct any building or other structure, or make any modification to plant or process, or perform any excavations on site without prior written permission of the Technical Services Manager. The Permit to Work Manual (SM.06B.02.000.00) and MOC processes (SM.07A.01.000.00) may also be applicable. The section of this manual on Waste Management provides further details on potential contaminated land management.

Biodiversity

Due regard must be given to the conservation of biodiversity during all maintenance operations.

Any work to hedges or vegetation must be performed in accordance with the Wildlife and Countryside Act 1981 and the Protection of Badgers Act 1992, as amended.

The legislation includes the “intentional or reckless interference of a badger sett”.

It is illegal to intentionally or recklessly kill, injure or take any wild bird; take, damage or destroy its nest while it is being built or in use; or take or destroy any wild bird egg.

In particular, vegetation or site clearance should be done outside of the bird nesting season (1st March – 31st July inclusive), to avoid impact to nesting birds and infringement of the Wildlife and Countryside Act 1981. Ref. RSPB website ‘The law and Garden Hedges’ at - https://www.rspb.org.uk/get-involved/community-and-advice/garden-advice/planting/hedges/the_law.aspx**.**

It is important that any work necessary is planned to avoid any sensitive species or times.

If deemed necessary, a pre-works ecological survey can be arranged via the Technical Services Department, and guidance obtained.

3.10.4 Control of Emissions to Air

Sources of emissions to air

Sources of permitted emissions to air are detailed in the following Table 2 (below), taken from Table S3.1 of the EPR Environmental Permit:

Source	Emission Point Reference and Location
SCV Exhaust Stacks (Phase I)	A1-A8
SCV Exhaust Stacks (Phase II)	A11-A17
Nitrogen plant product nitrogen vents	A21-A24
Flare Low Pressure (main burners and pilots)	A28
LNG Tank 1 relief vents	A29 – A32
LNG Tank 2 relief vents	A33 – A36
LNG Tank 3 relief vents	A37 – A40
LNG Tank 4 relief vents	A41 – A44
LNG Tank 5 relief vents	A45 – A48
Nitrogen plant (adsorption system) air purification vents	A51 – A54
Instrument Air Dryer Vents	A63-A66
SCV Pressure Relief Vents	A70-A84
SCV Burner Management System Fuel Gas Pilot and Interstage vents	A85 – A99
SCV Burner Management System Fuel Gas Main Burner vents	A100 - A114
Essential Emergency Generators A & B	A115 - A116
Diesel Firewater pumps A & B	A117 - A118
Jetty Firewater Pump Diesel Engine	A119
Nitrogen plant (adsorption system) waste gas vents	A120 –A124
Nitrogen plant main air compressors vents	A125 –A128
Nitrogen plant column liquid dump vents	A129 –A132
Nitrogen plant liquid nitrogen storage vents	A133 –A134
LNG import analyser – gas chromatograph sample gas vents	A135 –A136
LNG import analyser – sample pump exhaust vents	A137 –A138
LNG import analyser vacuum educator vent	A139
LNG Export analysers - LNG C6+ Chromatograph Analysers – gas chromatograph sample gas vents	A140 –A141
LNG Export analysers - LNG Sulphur Chromatograph analysers chromatograph-sample gas vents	A142 –A143
LNG Export analysers - - LNG Sulphur Chromatograph analysers chromatograph- Exhaust	A144 –A145
Note: *The above emission point references and locations are defined within the Environmental Permit. In accordance with the Environmental Permit (Condition 3.1), emissions to air shall arise only from these points.*	

Table 2. Emission Points to Air

As described in the Aspects and Impacts Register, emissions from the nitrogen plant vents (A21-A24), gas conditioning plant adsorption vents (A51-A54) and instrument air dryer vents (A63-A66) are non-polluting and have no adverse effects. No measures are therefore necessary to control emissions from these sources.

SCV exhaust stacks

15 submerged combustion vaporiser (SCV) units are installed at SHLNG, each of 169 te/h design capacity. Up to 15 SCV units may be operational at any one time, with redundancy provided to allow for continued operation during outage and/or maintenance.

An exhaust stack, 24 metres in height is installed on each SCV unit. Potential polluting emissions from the SCV exhaust stacks are oxides of nitrogen (NO_X) and carbon monoxide (CO).

Carbon dioxide (CO_2) is also released from the SCV exhaust stacks, and is subject to control under the Greenhouse Gas Emissions Permit. These requirements are addressed in the section on EU ETS Greenhouse Gas Monitoring and Reporting. Emissions of NO_X are subject to ELV's specified in the EPR Environmental Permit and detailed in the section of this manual on Environmental monitoring. No ELV is specified for carbon monoxide.

Control of NO_X is achieved primarily through good plant design/selection and the use of water injection to the SCV burners. Detailed procedures relating to the operation and maintenance of the water injection system are provided in the relevant vendor Operating and Maintenance Manuals and the SHLNG Terminal Operating Manual (see SHEMS System 6A - Operating & Maintenance Procedures.

A continuous emissions monitoring system (CEMS) is installed on two SCV units, 1H (A8) and 2A (A11). Data from the CEMS is transmitted continuously via the plant Distributed Control System (DCS) to a terminal in the Central Control Room (CCR), as described in the section of this Manual on Environmental Monitoring.

Process information can be viewed live in real-time on the Environmental Screen located in the DCS Operator Control Panel, and includes integral high and low alarms to enable early detection of approaching ELVs. The data can also be viewed remotely by access to the Plant Information Management System (PIMS) Exaquantum database, which is served by a redundancy backup server.

Procedures relating to the preventative measures in place are fully described in the following SHLNG documents:

- Operating Manual (SM.06A.1.000.00)
- Maintenance Manual (SM.06A.09.000.00)

NO_X emissions from the remaining 13 SVC units that do not have CEMS are measured on a quarterly basis, as described in the Environmental Monitoring Section below. Operating personnel are alerted by a visible alarm should NO_X emissions exceed a predetermined trigger value, the alarm set-point set in the DCS for CEMS and as specified in Appendix 3 of this manual. This is reported immediately to the Process Supervisor who immediately initiates an investigation into the cause of the incident, taking actions as outlined in the SHLNG Operational Guidance on Continuous Environmental Monitoring (available on the i:Drive and Operator Control Panel in the Central Control Room CCR).

Requirements regarding incident investigations and reporting are described in the section of this manual on Environmental Reporting and Notification.

Carbon dioxide (CO_2) is also released from the SCV exhaust stacks and subject to control under the Greenhouse Gas Emissions Permit. These requirements are addressed in the section of this manual on EU ETS Greenhouse Gas Monitoring and Reporting.

Flare

There is no routine flaring during normal operations.

Low pressure (LP) relief headers from the LNG tanks and related LP piping and equipment are collected, recondensed and sent out along with boil off gas. Gas is only routed to the flare if LNG tank pressure rises excessively.

The flare stack is continuously purged with nitrogen to keep positive pressure and to keep dry.

The EPR Environmental Permit does not specify an ELV for flare emissions; however, flaring incidents should be investigated and reported as described in the section of this manual on Environmental Reporting and Notification. The Senior Environmental Engineer is responsible for maintaining a record of all flaring events within the 'Flaring and Venting Register'.

CO_2 from the flare (including the back-up flare pilot ignition system) is subject to control under the Greenhouse Gas Emissions Permit. These requirements are addressed under the section of this manual on EU ETS Greenhouse Gas Monitoring and Reporting.

LNG tank relief vents

As described above, LP relief headers from the LNG tanks are recondensed and returned to the LNG tanks. In the event that LNG tank pressure rises excessively, gas is routed to the flare.

In extreme emergencies, such as LNG tank rollover, gases are relieved to the atmosphere via the LNG tank relief vents.

All venting incidents are recorded, investigated and reported as described in the SHEMS system 9A and Environmental Reporting and Notification section of this manual (below). The Engineering Technician is responsible for calculating and reporting the required flaring & venting emissions, mass release calculations and other emissions information to the Senior Environmental Engineer for entry into the Flaring and Venting Register and required emission reports.

Diesel engines

Five diesel engines are installed at the Terminal for emergency use only and are used as follows:

- Two diesel engine driven essential emergency generators provide electrical power for essential services in case of interruption of supply from the grid.
- Two diesel engine driven firewater pumps as back-up to the electrically driven primary firewater pumps.
- One diesel engine driven firewater pump is provided on the jetty.

For reliability and maintenance purposes, essential emergency generator diesel engines and Firewater pump diesel engines are operated periodically by the Maintenance Section and/ or Process operators as specified in the relevant operating and maintenance procedures and scheduled within SAP.

The EPR Environmental Permit does not specify an ELV for diesel engine emissions; however, all diesel engines are fired with low sulphur fuel in order to minimise emissions of sulphur dioxide (SO_2). Emissions of NO_X from the diesel engines are specified by the equipment suppliers.

CO_2 is also released from the diesel engine exhausts. CO_2 from diesel generator engines and temporary stationary sources of combustion on site are subject to control under the Greenhouse Gas Emissions Permit. These requirements are addressed in this manual under the section of this manual on EU ETS Greenhouse Gas Monitoring and Reporting.

3.10.5 Control of Emissions to Water

Sources of emissions to water are detailed in the section of this manual on Environmental Monitoring, are summarised in the following Table 3 (below) and illustrated in Appendix 2 – SHLNG Site Plan

Source	Emission Point Reference and Location
Site drainage (surface and ground-water)	W1
Process effluents (Neutralised SCV effluent).	W2
Notes: 1. The above emission point references and locations are defined within the EPR Environmental Permit. 2. In accordance with the EPR Environmental Permit (Condition 3.1.1), emissions to water shall arise only from these sources.	

Table 3. Emissions to Water

In accordance with the EPR Environmental Permit, there are no direct emissions of process effluent to sewer or to an effluent treatment plant from the Terminal. In accordance with the Site Lease Agreement, there is no discharge of noxious or deleterious matter or substances into sewers and drains, groundwater, land or onto adjoining premises.

Terminal design features and operations and maintenance techniques and procedures used by SHLNG to control emissions to water from the above sources is summarised below.

Site Drainage Discharge Point (W1)

In addition to rainwater, the site receives surface water run-off from the surrounding area and drainage from a number of drainage pipes. Groundwater also emerges at the site in various locations to form springs and marshy areas.

All surface water is collected by the site drainage system, which consists of a series of underground pipes and concrete lined open channels. Oil water separators in this system remove any oils that may have entered into the system through equipment leaks or spillages (see site drainage drawing (on LAN). Surface water eventually discharges to an attenuation basin and discharges directly to the Milford Haven waterway at discharge point W1.

Secondary containment of fuel and chemical storage facilities is required (by condition 3.2.3 of the EPR Environmental Permit) and prevents ingress of any significant quantity of oil or chemicals into the site drainage system. Maintenance of oil water separators is addressed in PE.06C.01.001.00_Drainage Systems Operation, Maintenance, Inspection & Sampling section on Inspection and Emptying of Tanks and Interceptors on Oily Water Drainage Systems.

Groundwater infiltration is usually sufficient to maintain the water level of the skim pond. However, if required, a small proportion of water from the attenuation basin may be directed to the skim pond to maintain the pre-construction condition of the pond, as described in the following SHLNG documents:

- PE.06C.01.001.00_Drainage Systems Operation, Maintenance, Inspection & Sampling, section on Sewerage & Drainage System Maintenance

Flow to the skim pond is restricted to 16 litres per second, as a higher flow could potentially mobilise sediments within the pond. Should the modification of site drainage arrangements be considered necessary, a comprehensive assessment of the potential effects upon the skim pond will be conducted and the modifications approved by the Technical Services Manager prior to any change.

Emissions from W1 are subject to emission limit values (ELV's) specified in the EPR Environmental Permit, as detailed in the section of this manual on Environmental monitoring and the alarm set point (as specified in Appendix 3 of this manual).

Visual assessment for oil and grease is carried out on a daily basis by the Laboratory Monitoring Contractor (LMC) from the discharge at W1 as described in the section on Environmental Monitoring. If oil and/or grease are detected, the LMC notifies the CCR and the Process Supervisor then immediately initiates an investigation. Actions are implemented as described in section on Environmental Monitoring and if necessary SHEMS 10A Emergency Preparedness and Community Awareness.

pH is measured on a daily basis by the LMC from the discharge at W1, as described in the section of this manual on Environmental Monitoring. If the ELV is breached, the LMC notifies the CCR and the Process Supervisor then immediately initiates an investigation.

Requirements regarding incident investigations and reporting are described in the section on Environmental Monitoring in this manual.

Total organic carbon (TOC) is measured weekly at W1. List II metals (Cu, Fe, Zn) are measured on a monthly basis from the discharge at W1 as described in the section of this manual on Environmental Monitoring. Should elevated concentrations of List II metals be detected, the LMC notifies the CCR and the Process Supervisor immediately initiates an investigation.

Whilst the volumetric flow from W1 is not expressly limited by the EPR environmental permit, volumetric discharge is estimated to allow calculation of mass emissions as required (see the Environmental Monitoring section of this manual).

W2 Process (SCV) effluent

Effluent from the SCVs is neutralised in the individual SCV water baths and conveyed to one of two neutralisation holding basins, where the effluent is held pending discharge. The effluent is then intermittently pumped, via continuous emission monitoring systems CEMS, in a dedicated pipeline along the jetty trestle to discharge point W2, located at a firewater caisson close to the jetty T-head.

Although SCV effluent is essentially clean water, nitrate levels are elevated, primarily by dissolution of NO_X and CO_2 arising from combustion in the SCV units. Also, the addition of sodium hydroxide for the pH neutralisation gives rise to traces of sodium carbonate and sodium nitrate.

The discharge from W2 is subject to ELVs, as specified in the EPR Environmental Permit, and detailed in the section of this manual on Environmental Monitoring.

The process for reporting breaches of W2 CEMS ELVs to the Senior Environmental Engineer is described in the SHLNG Operational Guidance on Continuous Environmental Monitoring (available on the i:Drive and Operator Control Panel in the Central Control Room CCR). For discontinuous monitoring, the LMC immediately notifies the CCR and the Process Supervisor immediately initiates an investigation. Requirements regarding incident investigations and reporting are described in SHEMS 9-A Incident Management and the section of this manual on Environmental Reporting and Notification.

Process information can be viewed live on the environmental screen located in the DCS Operator Control Panel, and includes integral high and low alarms to enable early detection of approaching ELVs. The data can also be viewed remotely by access to the PIMS Exaquantum database, which is served with a redundancy backup server.

The EPR Environmental Permit specifies that the maximum possible daily flow from W2 as 3500 m^3/day at a maximum rate of 164 m^3/hour. This is the maximum flow scenario. The process to keep the W2 flow within prescribed limits is addressed in the inherent Terminal design and SHLNG system 6A Operating Manual.

Under typical operating scenarios, water is discharged from W2 at a rate of 63 m^3/hour or 1512 m^3/day. W2 flow is measured continuously via MCERTS effluent flow meters, with analyser data being transmitted via the plant DCS to a terminal in the CCR, as described in the section on Environmental Monitoring in this manual (below). pH is monitored continuously on the final effluent discharge (W2) and upstream within the neutralisation basins and individual SCV water baths. Analyser data is transmitted via the plant DCS to a terminal in the CCR, as described in the section on Environmental Monitoring in this manual Where necessary, neutralisation is performed by operating personnel, as described in the SHLNG *Operating Manual (SM.06A.01.000.00).*

Retention in the holding 'Neutralisation' basins (also termed reverse osmosis RO basins) ensures that the pH of effluent discharged from the W2 remains within the permitted ELVs. BOD and total residual chlorine (as total free chlorine) in the discharge at W2 are measured on a monthly basis, as described in the section on Environmental Monitoring in this manual (below). The process for handling and control of chlorine-based additives is addressed in the SHLNG *Operating Manual (SM.06A.01.000.00).*

Concentrations of sodium carbonate and nitrate (NO_3) in the SCV effluent are normally in the region of 0.38 g/l (380 mg/l) and 0.1 g/l (100 mg/l) respectively. Under normal operating conditions, concentrations are well below the prescribed ELVs; however, NO_3 concentrations fluctuate in accordance with water flow rate from the SCV units, combustion characteristics, pH (requiring variable dosing of sodium hydroxide) and ambient temperature. The precise relationship with these factors is complex; however, even under maximum flow rate scenarios, the NO_3 concentration of the discharge from W2 is expected to be approximately 100 mg/l, i.e. within the prescribed ELV. The management of nitrates in the discharge from W2 is addressed in SHLNG *Operating Manual (SM.06A.01.000.00)*

Temperature is measured within the final effluent discharge pipe and for back up in the individual neutralisation basins, with the analyser data transmitted via the plant DCS to a terminal in the CCR, as described in the section on Environmental Monitoring in this manual.

For the determinants above, including the MCERTS effluent flow meters, if the releases exceed the alarm set-point (set in the DCS for CEMS and as specified in Appendix 3 of this manual), this must be reported immediately to the Process Supervisor who will initiate an investigation into the cause of the incident, taking necessary actions in accordance with the SHLNG 'Operational Guidance on Continuous Environmental Monitoring' (available on the i:Drive and Operator Control Panel in the Central Control Room CCR).

Requirements regarding incident investigations and reporting are described in the section of this manual on Environmental Reporting and Notification.

Domestic wastewater

There are no direct emissions from the process to foul sewer from the Terminal.

Domestic wastewater and sewage from the Terminal buildings, including the Gatehouse, Administration Building, Workshop, CCR building and Warehouse are discharged via a dedicated line to the public foul sewage treatment works near Herbrandston.

- Sewage from the Jetty Security building, Jetty Control building and Local Instrument Rooms 1 and 2, is directed to one of three cesspits, two of which are of 2.2 m^3, and the Jetty security, which is 9.0m3. Sewage is removed via vacuum tanker to the onsite pumping station, and/or is taken offsite via an authorised waste contractor. Further information is provided in the Waste Management Section of this manual (below).

3.10.6 Control of Emissions to Land and Groundwater

Selection and use of herbicides

In accordance with the EPR Environmental Permit (Condition 3.1.1), there are no emissions from the Terminal to land.

Secondary containment is required by EPR Environmental Permit (Condition 3.2.3), for all permanent and temporary fuel and chemical storage facilities to prevent the release of oil or chemicals, including List I/ List II substances.

The selection and use of herbicides at the Terminal is controlled to prevent the pollution of soil, groundwater and surface waters. Selection of herbicides is addressed in the following SHLNG documents:

- Delivery Specification Process Area Weed Remediation and Weed Clearance (implemented via MSS General Services Manager)
- See section on Raw Materials Management of this manual (below).

3.10.7 Control of Fugitive Emissions

Fugitive emissions to air

There are no significant routine fugitive emissions to air from the Terminal.

In addition to automatic gas detection systems, a programme of planned preventative maintenance is in place to detect fugitive gaseous emissions from pipes, valves and other transfer systems. Maintenance scheduling is designed for compliance with Pressure System Safety Regulations (PSSR) and incorporated into SAP, as described in the SHLNG SHEMS systems on Asset Integrity Monitoring, see SHEMS Systems 6-A Operating and Maintenance Procedures and 6-D Asset Integrity.

Fugitive emissions to air resulting from the spillage of LNG are addressed in the SHEMS System 10-A Emergency Preparedness and Community Awareness.

Fugitive emissions to water

There are no routine fugitive emissions to water or sewer from the Terminal.

Vehicles should only be washed offsite if chemical detergents are used, or in designated vehicle wash bay served by a sealed drainage system or connection to the public foul sewer.

In addition to management control via relevant procedures, a programme of preventative maintenance is in place to inspect the integrity of pipes, valves and other liquid transfer systems, and fuel and chemical storage facilities. Maintenance scheduling is designed for compliance with Pressure System Safety Regulations (PSSR) and incorporated into SAP, as described in the SHLNG Asset Integrity Monitoring; see SHEMS Systems 6-A Operating and Maintenance Procedures and 6-D Asset Integrity.

The cleaning of all areas on site, including surfacing, bunding and storage areas, generates wash water run-off, which may contain detergents and other chemicals. This run-off enters the site drainage system and subsequently the attenuation basin prior to discharge at W1.

The selection and use of cleaning products is controlled at the Terminal to prevent the ingress of hazardous or polluting substances to the site drainage system, as a result of cleaning activities. Selection of cleaning products is addressed in the following SHLNG systems/ documents:

- Chemical Exposure, Monitoring and Management, captured within System 6-B Work Management and System 5-C Control of Substances Hazardous to Health (COSHH).
- See section on Raw Materials Management of this manual (below).
- Material Handling and Storage captured within System 5-B Personnel Safety Management.

Requirements regarding incident investigations and reporting are described in SHEMS System 9-A Incident Management Manual and the section on Environmental Reporting and Notification of this manual (below).

Requirements regarding spill control are described in the SHEMS System 10-A Emergency Preparedness & Community Awareness.

3.10.8 Control of Noise & vibration

The EPR Environmental Permit requirements are specified in the following permit conditions:

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.

Herbrandston Hall

Noise assessments were undertaken as part of the Environmental Permit Application, which established far field sound pressure level limits at residential receptors of 35 dB(A) (i.e. design basis noise requirement). The most susceptible residential receptor is Herbrandston Hall, located in Herbrandston, and therefore serves as the specified receptor for plant source noise.

Measures to control noise to within 35 dB (A) at Herbrandston Hall are included in the Terminal design. A complete acoustic assessment conducted in 2006 on the basis of detailed design data concluded that the design basis would be achieved. Noise monitoring conducted as part of the plant performance testing in 2008 verified that the design basis was achieved by the Terminal when in operation.

Testing of emergency generators, alarms, sirens and relief valves is generally performed between 09.00 and 20.00 Monday to Friday, weekends and public holidays.

Given the control features inherent to the design of the Terminal, no routine monitoring of noise is required by the EPR Environmental Permit. Should complaints indicate potential increase in plant noise levels beyond 35 dB(A) design basis, the Technical Services Manager may consider initiating reactive noise monitoring (see Appendix 8) and a review of plant source noise to identify potential remedial actions to mitigate back to expected levels.

3.10.9 Containment and Spill Prevention

LNG

LNG is by far the largest quantity of material handled at the Terminal from the perspective of containment. The inventory of LNG, based on the maximum capacity of the LNG tanks, may be up to 341,000 te, which means that the Terminal is classified as a top-tier Site in accordance with the Control of Major Accident Hazard (COMAH) Regulations (2015 as amended).

The Terminal design is based on high integrity primary containment of LNG tanks (outer and inner tank can both independently contain the tank contents), pipes, ship connection and process equipment in order to minimise the risk of release.

Secondary containment is in place to control leakage and/or spillage of LNG. Drainage from the LNG tanks, pump and process areas is directed to an LNG spill impounding basin and then to the attenuation basin for combined discharge with other surface waters via authorised release point W1. This drainage is normally clean; however, the LNG spill impounding basin enables containment in the unlikely event of a leakage or spillage of LNG.

In case of major LNG spills, impoundment basins are provided at each of the LNG unloading berths, the LNG Tank area and for each SCV phase in the process area. The LNG drainage and impoundment basins are intended to channel large LNG spills away from equipment and to minimise the boil-off of LNG adjacent to equipment and remove it to a safe location where any fire can be controlled/extinguished.

Further details of primary and secondary LNG containment are provided in the COMAH Safety Report and the SHLNG SHEMS Systems 6-A Operating and Maintenance Procedures, 6-B Work Management and 6-D Asset Integrity.

Diesel

The two essential service generators are located in the Utility Area and driven by diesel engines served by 13.5-m^3 fuel tanks.

The two diesel engine driven firewater pumps are located by the main firewater tank and served by 5.4-m^3 fuel tanks.

The diesel engine driven jetty firewater pump is located near the Jetty Control Building and served by a 6.8-m^3 fuel tank.

All tanks are made of carbon steel and are of single containment design, located within impervious bunds providing 110% of tank capacity. On land filling points, vents and gauges are located within the bunds.

As agreed with Natural Resources Wales, all bunds incorporate a valve with manual release to allow discharge of clean rainwater to the site drainage system. If there is no oil or grease detectable by sight or smell, the bund water may be released via the release valve. If oil or grease is present, the General Services Manager must be contacted to arrange for the bund to be emptied by a gulley sucker, in accordance with PE.06C.01.001.00_Drainage Systems Operation, Maintenance, Inspection & Sampling section on *Bund Emptying.*

All water entering the site drainage system passes through oil water separators, thereby preventing the release of oil contaminated water through authorised release point W1, in the unlikely event of bund valve failure.

A programme of planned preventative maintenance is in place to inspect the integrity of the bunds and valves. Further details are available in the PE.06C.01.001.00_Drainage Systems Operation, Maintenance, Inspection & Sampling section on *Inspection and Emptying of Tanks and Interceptors on Oily Water Drainage Systems.*

The refuelling of tanks is fully described in the SHLNG procedures:

- Utilities Manual (SM.06A.22.000.00),
- Refuelling and Decanting Oil (PE.06A.00.129.00).

Sodium hydroxide

Sodium hydroxide, 20% wt caustic solution, is stored in two horizontal cylindrical vessels, each of 23 m^3 working capacity. The vessels are located in the Utility Area with the caustic solution distributed via gravity in a single distribution header for direct dosage to the SCV water baths.

The vessels are made of steel and are of single containment design, located within impervious concrete bunds providing 110% of tank capacity. Filling points, vents and gauges are located within the bunds.

The bunds incorporate a valve with manual release to allow discharge of clean rainwater to the site drainage system. The manual release of water from the bunds is described in the SHLNG procedures:

- Caustic Operations Manual (SM.06A.16.000.00)
- PE.06C.01.001.00_Drainage Systems Operation, Maintenance, Inspection & Sampling section on Bund Emptying

A programme of planned preventative maintenance is in place to inspect the integrity of the bunds, valves and transfer piping. Maintenance scheduling is designed for compliance with Pressure System Safety Regulations and incorporated into SAP. Further details are provided in the following SHLNG systems/ documents:

- SHEMS Systems 6-A Operating and Maintenance Procedures, 6-B Work Management and 6-D Asset Integrity
- PE.06A.00.131.00_Operational Surveillance Routines (SHEMS system 6-A Operating and Maintenance Procedures)

All water entering the site drainage system is conveyed to the attenuation basin, thereby enabling containment in the unlikely event of a spillage or leakage of caustic solution.

Vessels are filled from a roadside loading area that is curbed and fitted with a low point sump in order to trap any spills, in accordance with the SHLNG *Caustic Operations Manual (SM.06A.16.000.00).*

Oils, greases and lubricants

Oils, grease and lubricants are used at various locations throughout the Terminal, including the process area, utility area, BOG area, the gas (HP) send out area, and the jetty unloading arms area.

A programme of planned preventative maintenance is in place to inspect the integrity of all pumps and other equipment containing oils, greases and lubricants in accordance with the SHLNG SHEMS systems 6-A Operating and Maintenance Procedures & 6-B Work Management (see *Operational Surveillance Routines PE.06A.00.131.00*). Surface water entering the site drainage system is conveyed through oil water separators and subsequently to the attenuation basin prior to discharge via authorised release point W1. The separators serve to remove any oils, greases and lubricants in the unlikely event that any has entered the site drainage systems upstream.

Refuelling and decanting of oil is controlled via the SHLNG *Refuelling and Decanting Oil (PE.06A.00.129.00).*

Ethylene glycol refrigerant

Ethylene glycol is used for cooling in the nitrogen generation units (NGUs).

Contained storage and handling of ethylene glycol and the maintenance of ethylene glycol containers and NGU equipment is addressed in accordance with COSHH requirements.

Ethylene glycol is removed for authorised disposal off-site every 1 to 5 years. Disposal of refrigerant ethylene glycol following NGU system drain is arranged under the waste management contract, as described in the section on Waste Management in this manual (below).

Sulphur hexafluoride

Some high-voltage equipment, such as substation switchgear in sub-station SS01, is hermetically sealed and filled with sulphur hexafluoride (SF_6). This is a greenhouse gas subject to control under European

Community Regulation517/2014/EU as amended. SHLNG's inventory involves relatively small quantities and therefore most provisions of the EU Regulation do not apply.

In compliance with this regulation, the Maintenance Superintendent ensures that all equipment containing SF_6 is labelled, and that only certified personnel service this equipment.

Recovery of SF_6 is controlled by the European Community Regulation 517/2014/EU as amended. The Maintenance Supervisor ensures that gas recovery is only performed by certified personnel during maintenance and repair and before disposal of the equipment, as detailed in the SHLNG Asset Life Plan requirements.

Ozone depleting substances

The following points apply to ozone depleting substances, including HVAC servicing:

The SHLNG HVAC Technician confirmed SHLNG HVAC systems are hermetically sealed with maximum ODS gas inventory of less than 30 kg. Under the Environmental Protection (Control of ozone depleting substances) Regulations 2011, the system must be maintained and leak tested annually by a qualified engineer.

- Under the Energy Performance of Buildings (England &Wales) Regulations 2012, an energy assessment and report must be provided by a qualified energy assessor every 5 years on all systems with effective rated output greater than 12 kW. The energy assessor must be a member of an accreditation scheme approved by the Secretary Of State.
- In compliance with the above regulations, the Technical Services Manager/ Business Services Manager will ensure that all equipment (including HVAC equipment) is labelled, inspected and maintained and appropriate records placed on file for reference purposes, as detailed in the SHLNG Asset Life Plan requirements.

Use of herbicides and pesticides

The Food and Environment Protection Act 1985 (Control of Pesticides Regulations 1986, as amended) specifies the rules on using pesticides, herbicides, insecticides and fungicides to control weeds growing in water or on land.

All pesticides have information on the product labels to explain how and where they can be used. The product labels of aquatic herbicides explain that anyone who wants to use herbicides to control weeds in water (aquatic weeds), or on the banks or banksides next to a watercourse or other body of water, should obtain agreement from the Regulator (NRW in Wales). This is to ensure that the proposed use of the herbicide will not damage or pollute the aquatic environment (including both surface water and groundwater).

The NRW have produced an application form and guidance note to ensure they receive all information necessary before giving their agreement. More information can be obtained from NRW website at:

https://naturalresources.wales/permits-and-permissions/water-discharges/using-herbicides/?lang=en

Low Risk Agreements - use of Herbicide near water or a designated site:

You may be able to use herbicides without sending in an application to NRW, but **only** if your activity is low risk

If your activity meets **all** of the criteria below then it is classed as low risk:

- Herbicide is to be used near water, **but not actually in or on water.** For example you intend to use herbicide along the top of a river bank, but not within the channel
- The treatment location is **not within a designated site** (Site of Special Scientific Interest, Special Area of Conservation, Special Protection Area or Ramsar)
- The treatment location is not within 1 kilometre of a drinking water abstraction point and not within 500 meters of any other type of licenced water abstraction point

You must also ensure that:

- The manufacturers' instructions and the Control of Pesticides Regulations 1986 are complied with
- Spraying is carried out in the correct conditions, as detailed in the **Code of Practice for Using Plant Protection Products** (at https://www.hse.gov.uk/pesticides/using-pesticides/codes-of-practice/code-of-practice-for-using-plant-protection-products.htm), and kept to a minimum
- The product must be approved for aquatic use. This will be stated in the crops/situations part of the label. If you are unsure of whether the herbicide you want to use is approved for aquatic use, you can search the Chemicals Regulation Division (CRD) **database** (at https://secure.pesticides.gov.uk/pestreg/ProdSearch.asp). The database includes details of withdrawn products and their replacements
- No other product (eg an adjuvant) is used, unless it is approved for use in or near water
- Care is taken to avoid the potential contamination of any nearby surface water or wetlands
- In general, you should not use long lasting pesticides and pesticides that can spread within any area designated as a 'source protection zone' (SPZ) 1, or within 50 metres of a spring, well or borehole
- No other legal water interests, including private water supplies, are affected
- The treatment must be carried out by a person that holds the relevant NPTC or LANTRA certificate of competence, or under the direct supervision of someone who holds the relevant NPTC certificate of competence. You can find more information on certificates of competence in the **Agreement to use herbicides in or near water – guidance note** (at https://cdn.naturalresources.wales/media/684109/herbicide-guidance-aug16.pdf?mode=pad&rnd=131665516640000000)

If you can meet the low risk criteria and abide by the standards set out above, you can assume that NRW automatically approve the activity.

Note: *If you* cannot *meet the low risk location criteria or standards, you must apply for a higher risk agreement.*

The Business Services Manager via MSS General Services Manager, is responsible for the following:

- Ensuring that the SHLNG Delivery Specification Process Area Weed Remediation and Weed Clearance Plan is reviewed and refreshed routinely with input from Technical Services as necessary.
- Ensuring that all herbicides and pesticides are approved for use by the Technical Services, in accordance with COSSH and other legal requirements.
- Ensuring that any required NRW agreement is obtained before using any herbicide on or near water, using the appropriate forms, as described above.

Note: *The term "pesticides" includes herbicides as well as insecticides and fungicides.*

Spill response

Spill response is described in the SHEMS System 10-A Emergency Preparedness & Community Awareness), see system documentation on Spill Control including leakage or spillage of LNG.

Additional requirements regarding incident investigations and reporting are described in the section of this manual on Environmental Reporting and Notification.

In compliance with the Site Lease (Condition 3.31.3), any leakage or spill of any hazardous substance is recorded within the incident management system and, if necessary, provided by the SHLNG point-of-contact to the landlord, as described in the section below on Environmental Reporting and Notification. The clean-up method and investigations into the occurrence are also recorded.

3.10.10 Maintenance of Environmentally-critical Plant and Equipment and Operation Surveillance of Monitoring Data

Identification of potentially harmful plant and equipment

SHLNG has identified all plant and equipment that could cause adverse environmental impact in the event of failure. SHLNG ensures that all such equipment is maintained in good operating condition and that written or electronic maintenance programmes and records are maintained (under system 6-A and via SAP). The planned preventative maintenance routines are administered by the Maintenance Superintendent via SAP, and in accordance with SHEMS system 6-A Operating and Maintenance Procedures including the SHLNG *Maintenance Manual (SM.06B.09.000.00)* and associated procedures.

Maintenance, calibration, corrective response for statutory environmental meters (including CEMS meters) are identified in SAP.

Should any statutory environmental meters or any environmental monitoring data not be available for any reason (for example, because of meter malfunction or maintenance), then this will be reported without delay as described in the Environmental Reporting section in this manual and the SHLNG Operational Guidance on Continuous Environmental Monitoring (available on the i:Drive and Operator Control Panel in the Central Control Room CCR).

3.10.11 Inspection and Audit

Technical Services Department

Audits to assess conformance and compliance with key elements of this System are undertaken in accordance with SHEMS System 11-A Assessments & Continual Improvement and the annual Environmental Audits Plan, stored on the LAN.

Business/ General Services Sections

The Business Services Manager is responsible for ensuring that General Services staff undertake routine periodic inspections (at least monthly) of key operational areas and recording the results in the SHLNG Monthly Environmental Checklist filed on the LAN.

Operations Department

The Process Operators conduct routine inspections of key operational areas in accordance with the SHLNG SHEMS systems 6-A Operating and Maintenance Procedures & 6-B Work Management (see Operational Surveillance Routines PE.06A.00.131.00).

3.10.12 Communication

Internal reporting and communication

Internal reporting and communication associated with this procedure is detailed in the following Table 4:

Report	By	To	Frequency
Report breaches of ELV from continuous emissions monitoring systems or from periodic monitoring.	Laboratory and CCR Operatives	Process Supervisor	As required
	Process Supervisor	Senior Environmental Engineer	As required
	Senior Environmental Engineer	Technical Services Manager	As required
	Technical Services Manager	General Manager	As required
Environmental monitoring data not available for any reason.	Laboratory and CCR Operatives	Process Supervisor	Without delay
	Process Operators	Process Supervisor	Without delay
	Maintenance Technician (I&C)	Maintenance Superintendent	Without delay
	Maintenance Superintendent	Process Supervisor	Without delay
	Process Supervisor	Senior Environmental Engineer	Without delay during normal office hours
	Senior Environmental Engineer	Technical Services Manager	Without delay during normal office hours
Report flaring event	Process Supervisor	Senior Environmental Engineer	As required
	Senior Environmental Engineer	Technical Services Manager	As required
	Technical Services Manager	General Manager and Natural Resources Wales	As required
Report venting event	Process Supervisor Maintenance Superintendent	Senior Environmental Engineer,	As required
Report fugitive emissions to air, water or land detected during preventative maintenance.	Maintenance Personnel Operating Personnel	Process Supervisor Maintenance Superintendent	As required
	Process Supervisor Maintenance Superintendent	Senior Environmental Engineer	As required
Report spillage of oil or chemicals.	Person detecting spillage	Process Supervisor (or CCR on 2222)	As required

Report	By	To	Frequency
	Process Supervisor	Senior Environmental Engineer	As required
	Senior Environmental Engineer	Technical Services Manager	As required
	Technical Services Manager	General Manager	As required
Report on environmental inspection	General Services Manager/ personnel	Senior Environmental Engineer	Monthly / as required
	Process Operators (operational surveillance routines)	Process Supervisor	As per operational surveillance routines
	Process Supervisor (report any issues or problems immediately if significant, and/or at the start of the next working weekday if routine)	Senior Environmental Engineer	As required
Measurement and verification indicators	Senior Environmental Engineer	Technical Services Manager	Annually/ as required

Table 4. Internal Reporting and Communication

External environmental reporting to regulatory and other authorities is addressed in the section of this manual on Environmental Reporting and Notification Procedure.

3.11 Site Protection and Monitoring Programme (SPMP)

Introduction

SHLNG is required to produce a Site Protection and Monitoring Programme (SPMP) for its permitted installation, which receives stores and vaporises LNG for supply of gas to the National Transmission System (NTS).

The SPMP was produced by WSP Environmental Limited on behalf of SHLNG, in accordance with the requirements of the EPR Environmental Permit; reference number XP3538LD, issued under the Environmental Permitting (England and Wales) Regulations 2007.

This document should be read in conjunction with the following supporting documents:

- Application Site Report (ASR), dated September 2008
- PPC Permit XP3538LD, issued 13th June 2006
- EPR Environmental Permit, Permit Number EPR/ XP3538LD

Objectives

The objectives of this report are as follows:

- To design a monitoring programme for the installation to monitor the effectiveness of pollution prevention infrastructure and provide early warning of any release of polluting substances to ground or groundwater.

To review and if necessary amend the inspection, testing and maintenance programme for pollution prevention infrastructure at the installation to ensure their continued integrity.

3.11.1 Inspection

Business/ General Services Sections

The Business Services Manager is responsible for ensuring that General Services staff undertake routine periodic inspections (at least monthly) of key operational areas and recording the results in the SHLNG Monthly Environmental Checklist filed on the LAN.

General Services personnel submit these inspection reports to the Senior Environment Engineer for assessment and collation.

File location

The submitted Site Protection and Monitoring Programme is filedon on the LAN.

Site Condition Report (SCR)/ Baseline Report for Industrial Emissions Directive (IED)

The SPMP and groundwater & land quality of the permitted installation are maintained via periodic production of a Site Condition Report (SCR)/ Baseline Report for Industrial Emissions Directive (IED), in compliance with the requirements of EPR Environmental Permit, including condition 3.1.3. Further details are presented in the section of this manual on Environmental Monitoring.

3.12 Energy Management

Purpose

The purpose of this section is to describe how SHLNG will implement its Safety, Security, Health and Environment Policy and ensure that it complies with all relevant legal requirements relating to energy, including those required by the EU Emissions Trading Scheme (ETS) Greenhouse Gas Permit and the EPR Environmental Permit.

For the purposes of this document, energy includes natural gas, electricity and diesel fuel only.

3.12.1 Additional Responsibilities

Technical Services Manager

The Technical Services Manager is responsible for the following:

- Ensuring the effective implementation of this procedure.
- Ensuring that adequate resources and training are provided to meet all regulatory and voluntary obligations relating to energy management.
- Accepting ultimate accountability for all matters concerning energy within the organisation.
- Supervision of engineers to ensure energy efficiency techniques are implemented and that planned preventative maintenance includes checks for energy efficiency.
- Energy Committee to lead energy improvements.
- Ensuring that, where appropriate, SHLNG's energy performance is monitored and reviewed.
- Implementing initiatives to reduce energy consumption.
- Ensuring that EU ETS figures are reported in accordance with regulatory requirements.
- Ensuring that key performance indicators (KPIs) are set to monitor the use of energy and the implementation of energy efficiency techniques.

Senior Environmental Engineer

The Senior Environmental Engineer is responsible for the following:

- Is the Company's nominated 'Energy Champion'
- Collating energy consumption data and preparing the annual Energy Reports required by the EPR Environmental Permit.
- Liaising with engineers to ensure energy efficiency techniques are implemented and that planned preventative maintenance includes checks for energy efficiency.
- Collating of data & information, undertaking required audits and hosting regulatory third-party audits and reporting in accordance with regulatory requirements, including the EPR Environmental Permit, the EU ETS and SHLNG GHG permit,Energy Savings Opportunity Scheme (ESOS) and Streamlined Energy and Carbon Reporting (SECR).
- Ensuring that energy meters are read and associated records maintained.
- Reviewing energy readings and data

Energy Champion

The Energy Champion is responsible for the following:

- Ensuring the energy management process is established, implemented, maintained and continually improved.

- Ensuring that the planning of energy management activities is consistent with the SHLNG Policy (PY-000-00-01).
- Ensuring that adequate documented evidence of compliance with the Environmental Permit is maintained and made available upon request.
- Promoting the awareness of the energy policy and objectives at all levels of the organisation.
- Chair and convene regular meetings of the Energy Committee.
- Setting the agenda for each Energy Committee Meeting.
- Recording all actions and decisions agreed at the meetings.
- Liaising with committee members in between meetings to ensure actions are implemented as required.
- Maintaining and updating the Energy Efficiency Programme Plan (EEP).
- Reading energy meters and recording meter readings.
- Comparing meter readings with energy bills.
- Monitoring energy use to highlight anomalies.
- Assisting the Technical Services Manager in setting objectives and targets relating to energy management.
- Supporting the Technical Services Manager in monitoring and reporting energy management and performance.
- Liaising with the Technical Services Manager to ensure that any updates required to this procedure or the SHLNG Policy (PY-000-00-01) are fully implemented.

Procurement Manager

The Procurement Manager is be responsible for the following:

- Purchasing energy at the most competitive price, with consideration of renewable energy where practicable.
- Negotiating energy contracts with suppliers.
- Defining and documenting any energy purchasing specifications for effective energy use.

Managers and supervisors

All managers and supervisors is responsible for the following:

- Ensuring that all aspects of this procedure are implemented.
- Ensuring that where practicable energy-efficient practices are developed, implemented and maintained, and that they are continually reviewed and improved.
- Ensuring that all individuals under their control are properly trained and aware of any potential impacts their activities may have on energy use.
- Ensuring that any faulty plant and equipment within their area are reported and corrected promptly.
- Ensuring that, where relevant, KPIs are monitored and investigated if they are not achieved.

Electrical Engineer and Engineering Technician

The Electrical Engineer and Engineering Technician are responsible for the following:

- Proposing and supporting potential and actual energy saving initiatives from the installation
- Providing calculations quantifying the potential and actual energy savings from the installation, raw data, cost benefit assessments and information, as part of ensuring safe reliable and efficient operations

All personnel

All personnel is responsible for the following:

- Minimising energy use, wherever possible.
- Following all instructions given relating to energy matters.
- Reporting any defects that may lead to inefficiencies in energy use (e.g. faulty plant).
- Co-operating with management on all matters relating to energy management

3.12.2 Energy-related Legal Requirements

Environmental Permit requirements

SHLNG must comply with all legal requirements related to energy, including those required by the EU Emissions Trading Scheme (ETS) Greenhouse Gas Permit and the Environmental Permit.

EU ETS requirements are fully described in the section of this manual on EU ETS Greenhouse Gas Monitoring and Reporting and the EPR Environmental Permit requirements are specified in the following permit conditions:

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.

Energy Savings Opportunity Scheme (ESOS) Regulations (SI 2014/ 1643)

The Energy Saving Opportunity Scheme (ESOS) Regulations key requirements are set out below:

- The organisation is required to measure its total energy consumption for a period of 12 months including consumption attributed to use within buildings, transportation and Industrial processes. The 12 month period of valid consumption data must include the registration period and can be measured in energy units (kWh) or expenditure.
- The organisation must determine significant areas of Energy use, these must account for at least 90% of the organisations total energy use. During the phase all of the significant use must be covered by a valid ESOS assessment.
- A valid ESOS assessment is required to be conducted for all areas of energy use that make up you significant energy usage.
- Compliance with the scheme should be reported to the Natural Resources Wales NRW through the designated online reporting system

The Department of Energy and Climate Chance (DECC) has prepared a Guide to ESOS (Ref. Complying with the Energy Savings Opportunity Scheme, Environment Agency) to accompany the Regulations, which provides more information about the Scheme. Organisations must notify the NRW by a set deadline that they have complied with their ESOS obligations. The compliance actions are recorded in the Environmental Compliance Plan.

3.12.3 Energy Demand

Primary sources of energy

The primary sources of energy used by SHLNG are listed in the Table 5 below.

Energy Source	Description
Natural gas	Consumed in the LNG vaporisation process; LNG is vaporised in the SCV water baths, which are heated by exhaust gases from the combustion of a proportion of the vaporised natural gas. Natural gas consumed is approximately 1.3% of total LNG throughput. Each SCV unit requires approximately 2160 kg/hour of fuel gas at full load. Theoretical fuel burn across 14 SCV units at full load is 30240 kg/hour; 26127 tonnes/annum.
Electricity	Imported directly from the National Grid and consumed throughout the Terminal. The installed import capacity is 55 MW with an average total consumption of 45 MW. The main loads are from the SCV units, BOG compressor units, nitrogen generation units, tank pumps and the HP booster pumps.
Diesel fuel	Consumed by the essential services generators and firewater pumps. A map of diesel storage locations is presented in Appendix 5

Table 5. Primary sources of energy at SHLNG

3.12.4 Design Energy Efficiency

Design during FEED and EPC phases

During the FEED and EPC phases of SHLNG, the EPC contractor was obliged to pay due attention to energy conservation and ensure energy use was as low as reasonably practical. Energy efficient techniques incorporated in the design are detailed in the PPC Application of November 2003.

Energy efficiency guarantees relating to fuel gas consumption were contained in the EPC Contract and demonstrated during the plant performance tests. As most of the combustion heat is recovered, the thermal efficiency of the SCVs vaporisation process is very highThe Design Combustion Efficiency of the SCVs is 97.8%, specified in original equipment manufacturer vendor data sheet for the SCVs (ref. 580143891-PO-46101-ED2-026.pdf).

The design energy usage of the major plant items is as low as reasonably practical and in conformance with regulatory requirements.

3.12.5 Energy Management Process

Energy management system

SHLNG's energy management process equates to an Energy Management System and consists of the components described below.

Energy policy

SHLNG's Policy is stated in the SHLNG Safety, Security, Health and Environmental Policy (PY-000-00-01). It was developed to demonstrate the importance of energy in SHLNG's strategic plans and

objectives, and commitment to improving energy efficiency. The policy is periodically reviewed and updated, as required.

Energy Champion

The Energy Champion has overall responsibility for developing, implementing and maintaining the energy management process. The Energy Champion will work with management to establish the scope and boundaries of the energy management process and form an Energy Committee.

The Energy Champion will schedule and chair regular Energy Committee Meetings, and ensure that appropriate records are retained of all such meetings, including minutes and/or updates to the Energy Efficiency Plan (EEP), and are communicated to all relevant personnel.

The Energy Champion will liaise with committee members and other relevant parties during the periods between committee meetings to ensure that actions are closed out in a timely manner.

Energy Committee

The Energy Committee consists of a cross-functional team able to provide a diverse set of skills and viewpoints to develop and implement a successful and effective energy management process. Committee members must ensure that any actions assigned to them are completed in a timely manner.

The energy committee will be responsible for identifying and agreeing actions and energy saving initiatives, including high and low risk actions requiring varying levels of development and implementation. Timescales for the implementation of these actions will be agreed according to their level of risk or importance.

For budgeting purposes, the energy committee will identify improvement actions/ targets to be agreed by the SHLNG Senior Management Team (SMT).

Energy Efficiency Plan (EPP)

The purpose of the Energy Efficiency Plan is to make recommendations to improve energy efficiency at SHLNG. The plan is a working document and includes agreed energy objectives and targets, and the following details:

- Benefits to be achieved by implementing the improvements.
- Responsible individuals.
- Target dates and milestones.
- Status and actions taken.
- A column for updates/actions taken.

Actions identified will not be considered closed or completed until the evidence has been reviewed and verified by the Energy Champion and/ or the Technical Services Manager.

The Energy Efficiency Plan (EEP) will take into account legal and other requirements applicable to SHLNG as well as the company's energy uses and opportunities to improve energy performance; for example, improved monitoring and targeting.

The plan will also be used as a method of identifying and documenting any necessary operational control measures that are required to achieve continual improvement in energy performance.

Energy awareness and competence

SHLNG management will ensure that they are competent to perform their roles. The type of training received is dependent upon the job role and responsibilities and will be agreed by the Technical Services Manager and other members of the management team.

Training delivery and record keeping is managed via SHEMS System 5-A Competence Assurance.

Communication

SHLNG's energy management and energy performance will be communicated to all personnel, normally via the standard mechanisms including awareness material, such as posters, bulletins, newsletters and/or briefings.

Energy KPIs

Terminal Daily Report KPIs have been set to measure SHLNG's energy performance and are periodically reviewed to ensure their continued suitability. These KPIs enable any deviations from the standard or typical energy consumption rates to be identified and investigated by management.

KPIs set will normally include the following:

- Delivered energy as a percentage of nominated quantity (Redelivered Efficiency £/GWh)
- Total electricity as percentage of flow.
- Diesel supply sufficient (hrs)
- SCV fuel as percentage of flow.

Daily KPIs will be communicated to relevant personnel for review, and investigated if targets are not achieved. KPIs will be reviewed periodically as required.

Energy monitoring and targeting

The purpose of monitoring and targeting is to relate energy consumption data to production figures or other measures to enable SHLNG to understand how energy is being used, and to identify any avoidable waste or other opportunities to reduce consumption.

Monitoring and targeting provides essential underpinning for energy management activities, and allows SHLNG to:

- Detect avoidable energy waste that might otherwise remain hidden. This is waste that occurs at random because of poor control, unexpected equipment faults or human error, and which can usually be put right quickly and cheaply, or at no cost.
- Quantify the savings achieved by the company's energy projects and campaigns in a way that accounts fully for variations in levels of production activity and other external factors.
- Identify the most useful lines of investigation for energy surveys. Rather than starting a survey with no clear agenda, specific questions can be prepared, prompted by observed erratic or unexpected patterns of consumption.
- Provide feedback for staff awareness, improve budget setting and perform benchmarking.

Energy monitoring

Energy consumption is continuously monitored throughout operations. Energy usage can be monitored for key items of plant using the Plant Information Management System (PIMS) which incorporates the Electrical Network Monitoring & Control System (ENMC). SHLNG maintains and periodically updates an energy management process, which includes the monitoring of energy flows, and assesses energy consumption. Energy flows and consumption are presented in the Terminal Daily Report KPIs, where key energy consumption is tracked.

Fuel gas flow to the SCV units is measured at the fuel gas inlet line and transmitted via the plant DCS to a terminal in the Central Control Room. Mass, standard volume and energy flow rates (hourly, daily, monthly and cumulative totals) are calculated and stored within PIMS. The combustion of fuel gas represents a major operational cost to SHLNG and therefore there is an important commercial driver to minimise fuel gas consumption. This efficiency drive is not duplicated within the energy management process and no additional measures relating to fuel gas are contained in the Energy Efficiency Plan.

The Senior Environmental Engineer maintains a Utilities Monitoring Spreadsheet on the LAN in which energy use is recorded and analysed for trends. The spreadsheet is populated monthly when internal

meter readings have been obtained. Meter readings are cross-checked against web data where available to ensure there is not a significant disparity between the two figures. Any significant discrepancy (i.e. greater than 10%) that cannot be accounted for by time and date of meter readings or specific operations will be investigated by the Technical Services Department.

Further information on fuel gas usage is provided in the section on Greenhouse Gas Monitoring and Reporting section of this manual.

The data is used by the Senior Environmental Engineer to prepare an Energy Consumption Report in January of each year, detailing energy consumption for the previous year.

The Energy Consumption Report is submitted to the NRW, as described in the section of this manual on Environmental Reporting and Notification Procedure.

SHLNG implements systems to enable energy flows to be monitored, and subsequently, enable areas for energy efficiency improvements to be targeted.

The main drives used on site (i.e. those of 6.6 kV or greater) will be the focus of sub-monitoring as these represent the areas of the site with the greatest potential for a reduction in energy use. These drives are monitored through the Electrical Network Monitoring & Control (ENMC) system, which enables energy consumption to be monitored in real time.

Historical trends and patterns in sub-monitoring may be analysed using Exaquantum to identify any inefficiencies, which can then be further targeted for improvement. All targets will be documented and monitored by the Energy Champion and the Energy Committee.

SHLNG will review its measurement needs and ensure that the equipment used in monitoring and measuring key characteristics provides accurate data. The Maintenance Superintendent will ensure that monitoring equipment is calibrated in accordance with the manufacturer's recommendations, or as otherwise agreed, and that records are retained accordingly.

Energy targeting

Energy objectives and targets set should be specific, measureable, achievable, realistic and timely (SMART) with consideration of practical application and achievability.

Objectives and targets should be:

- Rational, taking into account known achievable performance.
- Discussed and agreed with management.
- Continually amended to reflect improvements.
- Regularly reviewed for performance.
- Beneficial for financial and sustainability reasons.

Objectives and targets should be recorded in the Energy Efficiency Plan, or other agreed format, and monitored and reported.

Consideration should be given to the following when determining the priorities for targeting:

- Resources required to implement the target, including time, financial and man-hours.
- The level of cost and/or CO2 savings that can be achieved.
- Whether there is increased ability for SHLNG to achieve legal compliance.
- Longevity of the improvements.

The ability to benefit other SHLNG SHEMS systems.

3.12.6 Diesel

General

Red diesel is used as a fuel for firewater pumps and emergency generators and is reported as part of the EU ETS. Full details are provided in the SHLNG EU ETS Greenhouse Gas Monitoring section of this manual.

White diesel is used as a fuel for onsite vehicles and is not reported via EU ETS, as it is a transport source.

Red and white diesel consumption and associated emissions are estimated from the run times multiplied by consumption rate and the emissions factor (Tonnes CO_2/TJ). This can be checked by means of the amount delivered to site in a calendar year. The diesel is sourced by a single supplier contract and thus only one source of data is required. This data source is the delivery tickets, emails and invoices provided by the supplier. Departmental responsibilities are shown in Table 6 below:

Departmental responsibilities

Department	Action
Technical Services	The Technical Services Department will ensure that on a minimum of an annual basis, data sources are reconciled, consumption information reviewed, and any anomalies actioned: The Senior Environmental Engineer will: • Update the utilities monitoring spreadsheet stored on the LAN with delivery ticket information supplied by the Business Services Department and the Operations Department on a monthly basis. • Notify the Business Services Department and Operations Department of any unexplained discrepancies and/or patterns of consumptions (e.g. due to failures).
Business Services	The Business Services Department will ensure that the Senior Environmental Engineer is provided with copies of all red and white diesel invoices.

Table 6. Diesel Usage and Documentation on Site

3.12.7 Internal Reporting and Communication

Frequency of reporting

Internal reporting and communication required as part of this procedure is listed in the Table 7 below:

Report/Communication	By	To	Schedule/Frequency
Energy Consumption Report	Senior Environmental Engineer	Technical Services Manager	Annually in January
Energy Efficiency Plan, including targets	Senior Environmental Engineer	All relevant personnel	Periodic, if necessary after each Energy Committee meeting

Table 7. Internal Energy Reporting Schedule

3.13 Raw Materials Management

Purpose

The purpose of this section is to describe the mechanisms by which SHLNG will manage the use of raw materials and water. Other identified energy sources i.e. natural gas, electricity and diesel are covered in the sections of this manual on Energy Management and the EU ETS Greenhouse Gas Monitoring and Reporting.

The EPR Environmental Permit requirements are specified in the following permit conditions:

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

3.13.1 Additional Responsibilities

Operations Manager

The Operations Manager will be responsible for the following:

- Reviewing agreed actions to improve the efficient use of raw materials and water, and to minimise waste.
- Ensuring that all such agreed actions are fully implemented.

Technical Services Manager

The Technical Services Manager will be responsible for the following:

- Reviewing and approving raw material reviews, including proposals for raw material replacement, as appropriate.
- Reviewing and approving water usage reviews, including any proposals for increasing water-use efficiency.
- Reviewing and approving action plans arising from any waste minimisation and water-use efficiency audits.
- Communicating raw materials monitoring internally, as required.

Senior Environmental Engineer

The Senior Environmental Engineer will be responsible for the following:

- Reviewing the Raw Materials Register and Waste Register periodically (at least annually), and preparing reports including any proposals for raw material replacements as appropriate.
- Reviewing water usage annually, including any proposals for increasing water-use efficiency.
- Reviewing any waste minimisation and water-use efficiency audits and preparing action plans arising from them, or as otherwise required.
- Obtaining water meter readings and vendor data from Welsh Water and updating the results in the Utilities Monitoring Spreadsheet stored on the LAN.
- Collating measurement and verification indicators, as required.

Business Services Manager

The Business Services Manager will be responsible for the following:

- Ensuring waste minimisation and water-use efficiency audits are undertaken as required.

Operations (Process & Maintenance) personnel

Operations personnel will be responsible for the following:

- Collecting and providing raw materials data.
- Participating in reviews of raw materials.
- Implementing raw material replacements, water-use efficiency actions, and action plans arising from waste minimisation and water-use efficiency assessments/ audits.

Other personnel

All other personnel will be responsible for implementing raw material replacements, water-use efficiency actions, and action plans arising from waste minimisation and water-use efficiency assessments/audits.

3.13.2 Review and Selection of Raw Materials

System for managing raw materials

SHLNG's system for managing raw materials is described Appendix 4 and in the Table 7 below.

Stage	Responsibility	Description
1	Operations. Maintenance personnel	Define scope - what material, why (technical outputs). When is it needed, how much should be delivered, and to where?
2	Purchasing / Stores	Develop and refine Request for Quotation (RFQ) and seek competitive quotations.
3	Supplier	Lowest cost / technical output wins the tender.
4	Purchasing / Stores	Set up supplier on SAP and record each purchase including amounts/volumes (Stores has a specific number for each material).
5	Supplier / Health and Safety / Stores / Operations	Brings materials to site, SDS provided, material stored either in stores or on site for use.

Table 8. Raw Materials Management System

Raw materials data management

SHLNG maintains a register of raw materials stored on the LAN. The register provides details of how or where each material is used, the annual quantity/volume procured, and the characteristics of the associated waste. Copies of relevant Safety Data Sheets (SDSs) are kept by the Health and Safety section. The Senior Environmental Engineer obtains raw material usage from operations and maintenance personnel on a periodic basis, at least annually.

Initial review of raw materials

An initial appraisal of raw materials used at SHLNG was conducted prior to starting the site, and the results recorded in the Register of Raw Materials 2007. It should be noted that correspondence with the Environment Agency (now the NRW) has confirmed that three raw materials are imported and directly used in the production of gas. These are LNG, nitrogen and caustic. However, although the Register of Raw Materials has been broadened to include ancillary materials used in support activities on site, such as maintenance of equipment, only LNG, nitrogen and caustic are reported under the EPR environmental permitting regime.

During 2010, the first year of full operations, SHLNG identified the raw materials utilised in the permitted process, established a framework for reviewing raw materials used and where appropriate considered the availability of alternative raw materials that would be preferable from an environmental perspective.

The initial review considered, based on the information available, the quantities of raw material used, the toxicity / bioaccumulation potential characteristics of the raw material and the anticipated waste characteristics of the spent material.

By assessing the above information, the key raw materials in terms of consumption were identified and analysed and the environmental risk assessed; the focus being on the key materials consumed.

The findings of the initial review are detailed in Register of Raw Materials 2010.

On-going review of raw materials

The same process as the one identified in the Initial Review of Raw Materials is followed for subsequent years of operation.

The Senior Environmental Engineer obtains raw material usage and waste data from operations and maintenance personnel on a periodic basis, at least annually.

The Raw Materials Register is reviewed annually by the Senior Environmental Engineer to ensure that it is up to date.

Should the review identify that a preferable raw material is available the Senior Environmental Engineer will prepare a brief summary for the Technical Services Manager of the costs and benefits of the proposed substitution.

The materials are classified in the Raw Materials Register using a 'traffic light' system:

Red

Materials with a high level of potential environmental impact i.e. large quantities stored and a spill would lead to loss of flora and fauna. These materials have acute short term and long-term effects.

These are reviewed and possible environmentally suitable alternatives researched annually.

Amber

Materials with a moderate level of potential environmental impact i.e. some damage to flora and fauna (such as smothering). With the potential for damaging short term effects, the long term effects are minimal but have the potential for some bioaccumulation.

These are reviewed and possible environmentally suitable alternatives investigated biennially.

Green

Materials with limited or no potential for environmental impact i.e. quantities stored are minimal or there would be no visible damage to flora and fauna, and no long term effects.

These are reviewed and possible environmentally suitable alternatives looked into every four years.

Alternative raw materials

SHLNG operations and maintenance personnel may for operational reasons propose alternative raw material. The proposed change is communicated to the Technical Services Manager for evaluation and approval. The Senior Environmental Engineer reviews the proposed new material from an environmental perspective, based on the same considerations described above, and will report the findings to the Technical Services Manager.

The Senior Environmental Engineer will update the Raw Materials Register when the new material has been approved and procured.

New raw materials

New raw materials may be required by Operations and Maintenance at periodic intervals. Such raw materials should be addressed by the Technical Services Department using the same process as identified above when assessing if alternative raw materials should be investigated.

The process for reviewing and selecting raw materials is illustrated in Appendix 4.

3.13.3 Water-use Efficiency

General description

The Welsh Water company (Dwr Cymru) supplies water to SHLNG via the following two pipelines:

- Potable water supplied from the local mains via a dedicated 4-inch pipeline.
- Service raw water is supplied via dedicated 18-inch pipeline from the Eastern Cleddau River.

The EPR Environmental Permit requires that incoming water use is directly measured and recorded. This is confirmed on a monthly basis by the Senior Environmental Engineer.

The potable water system serves all occupied buildings on site: Gatehouse, Administration, Warehouse, Maintenance Workshop, Control Room, Jetty Gatehouse and Dock Master Office and also serves all safety shower and eyebath installations.

The 'raw' service water system serves the firewater system and the service water system, including the SCV units, SCV neutralisation basin, nitrogen generation units, BOG compressor units, flare knock-out drum, essential services generators, HP send-out pumps and LNG spill basins.

Welsh Water meters the supply of potable and service water to SHLNG, and allows total water consumption data to be assessed by SHLNG on a regular basis.

Potable water consumption

Potable water is supplied via a meter beneath a manhole cover at the Terminal main site entrance (in front of the Meter Hut), as illustrated in the Figure 1 below.

Figure 1. Meter Hut, Manhole Cover and Potable Water Meter

Raw water consumption

Raw water is supplied via a meter in the Meter Hut, as illustrated in the Figure 2 below. The key for the entrance door of the Meter Hut can be obtained from the Security Gatehouse.

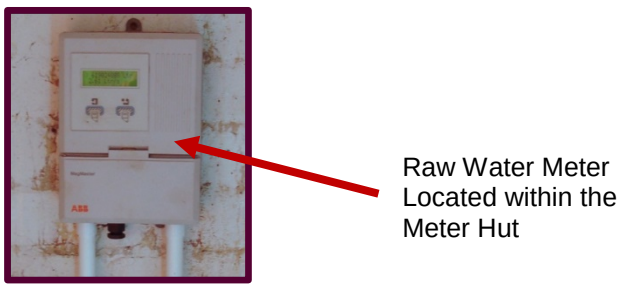


Figure 2. Raw Water Meter

Water consumption

Required actions associated with water consumption are described in the Table 9 below

Responsible Department	Action
Technical Services	The Senior Environmental Engineer will ensure that on a minimum of quarterly basis they will reconcile data sources and review consumption information and action any anomalies. The Senior Environmental Engineer is responsible for ensuring the : • Taking manual potable and raw water (including volumetric consumption as shown on the meter digital display) meter readings on a monthly basis (on the first of the month or as close as possible). • Downloading potable and raw water meter data from the supplier website, as available • Record meter readings and update the Utilities Monitoring spreadsheet, stored on the LAN. Notifying Finance personnel of any discrepancies identified / unexpected patterns of consumption due to leaks / meter failure etc.
Business Services	Providing the Senior Environmental Engineer with copies of the potable water and raw water supplier invoices, as required.

Table 9. Water Consumption Actions

Frequency of reporting

Internal reporting and communication required under this procedure is detailed in the Table 10 below.

Report/Communication	By	To	Schedule/Frequency
Review of Raw Materials Register	Senior Environmental Engineer	Technical Services Manager	Annually by 31 of March
Review of water usage	Senior Environmental Engineer	Technical Services Manager	Annually by: 31 January (EPR permit), and 31 March (PRTR)
Communicate raw materials replacements, and any water-use efficiency actions	Technical Services Manager	All relevant personnel	As required
Measurement and verification indicators.	PSPI for water metrics	All relevant personnel	Daily

Table 10. Internal Reporting and Procedures

3.13.4 Internal Reporting and Communication

Frequency of reporting

Internal reporting and communication required under this procedure is detailed in the Table 11 below.

Report/Communication	By	To	Schedule/Frequency
Review of Waste Register.	Senior Environmental Engineer	Technical Services Manager	Annually in January
Communicate actions arising from any waste minimisation audits.	Business Services Manager	All relevant personnel	As required
Measurement and verification indicators.	Senior Environmental Engineer	Annual Review (AR) of SHEMS System 6-C	Annually

Table 11. Internal Reporting and Procedures Responsibilities and Frequency

3.14 Waste Management

Purpose

The purpose of this section is to describe how SHLNG will ensure that waste generated during the operation of the Terminal is managed such that:

- Best available techniques and practicable environmental options are selected for waste management.
- Waste storage and handling facilities are managed such that releases to water or land are prevented during normal operation.
- Emissions to air and accidental release to water or land are minimised.
- Waste is managed in accordance with the principles of the waste hierarchy and in line with the Welsh Waste Strategy (Waste Strategy 2009 –2050: Towards Zero Waste).
- A detailed record of waste management activities is maintained.
- Any exempt waste operation(s) under the Full Text of Schedule 2 to the Environmental Permitting (England and Wales) Regulations SI 2016/1154 is clearly identified and stored separately.

3.14.1 Additional Responsibilities

Business Services Manager

The Business Services Manager is responsible for the following:

- Is the Contract Owner for the General Services Contract which includes the provision of legally compliant waste management services as outlined in this SHEMS System 6-C Environmental Management manual.
- Ensuring that waste management on site complies and conforms to all relevant legislation regulations and best practice.

Senior Environmental Engineer

The Senior Environmental Engineer will be responsible for the following:

- Providing advice on waste management legal requirements, as required.
- Preparing the annual waste performance report for Natural Resources Wales every January.
- Collating measurement and verification indicators on an annual basis, for the Annual Review (AR).
- Reviewing the Waste Register on a periodic basis, at least annually.

Business Services Coordinator,

The Business Services Co-ordinator is responsible for the following:

- Co-ordinates the waste management elements of the General Services contract
- Is the Contract Manager for the waste management services elements of the General Services Contract, for the provision of legally compliant waste management services.
- Ensuring provision of health and safety risk assessments and associated method statements for all waste streams.
- Identifying waste, recording waste transfers and consignments, reviewing the Waste Register.
- Checking and monitoring waste carrier and disposal site, at least annually, and as otherwise agreed within the contract.
- Inspecting South Hook SHLNG's waste handling and storage facilities and suggesting any improvements that may be necessary.
- Managing the hazardous waste store.
- Complying with all relevant laws, regulations and South Hook SHLNG procedures.
- Maintaining records as legally required and as requested, especially duty of care documentation.
- Submitting all invoices to the South Hook SHLNG Finance and Administration Department.
- Attaching the relevant Monthly Waste Statement (Summary Sheet) to submitted invoices showing the invoice value and corresponding waste movements spreadsheet.
- Reviewing Contractor activities to ensure conformance with the General Services Contract.
- Issuing instructions for managing general waste and hazardous waste.
- Monitoring, developing and ensuring implementation of recycling schemes, as appropriate.
- Co-ordinating waste management via with the General Services Contractor.

General Services Contract Manager

The General Services Contract Manager is responsible for ensuring compliance with the waste requirements within the General Services Contract, including but not limited to the following:

- Providing health and safety risk assessments and associated method statements for all waste streams.
- Identifying waste, recording waste transfers and consignments, and maintaining the Waste Register.
- Checking and monitoring waste carrier and disposal site, at least annually, and as otherwise agreed within the contract.
- Inspecting South Hook SHLNG's waste handling and storage facilities and suggesting any improvements that may be necessary.
- Managing the hazardous waste store.
- Complying with all relevant laws, regulations and South Hook SHLNG procedures.
- Maintaining records as legally required and as requested, and providing these records and reports to South Hook SHLNG, especially duty of care documentation.
- Submitting all invoices to the South Hook SHLNG Business Services Department.
- Attaching the relevant Monthly Waste Statement (Summary Sheet) to submitted invoices showing the invoice value and corresponding waste movements spreadsheet.

The General Services Contractor's responsibilities are fully described in the General Services Contract.

All Personnel

All personnel are responsible for the following:

- Minimising production of waste from operational and maintenance activities.

- Handling, storing and segregating waste to prevent releases to land and water.
- Maintaining SHLNG's waste management facilities to prevent releases to land and water.
- Implementing waste management work instructions to minimise the production of waste and maximise re-use, recycling and recovery of waste.

3.14.2 Overview

SHLNG Waste Register

Waste at SHLNG Terminal is managed in accordance with all relevant legislative and regulatory requirements, a list of which is updated periodically (at least annually) by the Senior Environmental Engineer.

The SHLNG Waste Register is maintained by the General Services contractor and provides an overview of waste management activities at SHLNG.

Waste at the Terminal is managed via a General Services contract, although a duty of care for waste is also retained by SHLNG. SHLNG maintains copies of all relevant legislative paperwork including, duty of care, waste carriers and broker licences.

3.14.3 Waste Classification

Classification of new and non-routine waste

The Business Services Coordinator and/or the General Services Contractor are responsible for the waste classification process. The General Services Contractor ensures that details of all wastes routinely generated at SHLNG are recorded in the Waste Register, including those categories of waste defined in the European Waste Catalogue (EWC). The General Services Contractor also classifies hazardous waste mirror images.

In discussion with the Business Services Coordinator, the General Services will classify any new or non-routine wastes and update the Waste Register accordingly.

From 1 April 2016, under Hazardous Waste (England and Wales) Regulations SI 2005/894, there is a requirement for the 2007 SIC code on the consignment note, but the use of NACE codes will continue to be allowed. The Site 2007 SIC code is:

Gas production for the purpose of gas supply:

2007 SIC code for Hazardous and other wastes = D35.21

(http://www.environment-agency.gov.uk/business/regulation/129242.aspx)

The current SHLNG Terminal hazardous waste premises code is: Registration Number CAJ809, and must be renewed annually by the 8th October.

3.14.4 Primary Waste Streams

Office waste

Office waste at SHLNG is split into the following main waste streams:

- Dry recyclables (including paper, cans and plastic).
- General waste.

These primary waste streams are separated at source at the facility. Where applicable, central stations are provided for the collection of dry recyclables (yellow) and general waste (black). These bins are emptied at least once per day and taken to the waste compound area where they are placed into 1100-litre wheeled bins to await collection, via the General Services Contractor.

In addition to these primary waste categories, small amounts of the following waste are generated by office personnel:

- Domestic batteries.
- Toner cartridges from printers.
- Shredded (confidential) office paper.
- Food Waste

These waste streams are removed to the Hazardous Waste Store and Waste Compound Area respectively.

Any waste streams falling outside of these categories will be appropriately managed by the General Services Contractor in consultation with the Business Services Coordinator, as necessary.

Details of office waste and recycling storage containers located at the Terminal are held by the Business Services Coordinator, under the General Services contract.

Operations, Maintenance and Warehouse waste

In addition to general office waste, operations, maintenance and warehousing activities will also create the following waste streams:

- Oily waste, Plastic packaging (film), Cardboard packaging (boxes)
- Wood packaging (pallets and crates)
- Metals

Each of the above waste streams are separated at source by the user, using the waste receptacles provided. The waste is then taken to the Hazardous Waste Store or Waste Compound Area by the General Services Contractor.

This does not apply to the disposal of oil or materials used to clean up spilt oil. These materials should be returned to the Hazardous Waste Store by the user and then sorted and disposed of by the General Services Contractor.

Details of onsite central waste and recycling and storage containers located at the Terminal are held by the Business Services Coordinator, under the General Services contract.

Food waste

Food waste is currently collected at the canteen locations for reuse as compost, anaerobic digestion or other suitable process.

Green waste

Green waste generated at the Terminal is primarily a by-product of landscaping. Where green waste can be left in situ to mulch, no further action is taken. However, if green waste is aggregated, then it is removed from site to a suitable waste disposal site, as detailed in the Waste Register.

SHLNG has a Duty of Care, under waste management laws, to ensure that the waste (including any leachate) is fully contained and cannot escape. Therefore, no such wastes should be stored on the ground. Green wastes on site, arising from grounds maintenance etc., are placed in the suitable skips and/or other containers that are to be provided for this purpose under the General Services Contract.

Soil, stones and naturally occurring excavated materials

Naturally occurring clean excavated material can be used on site, but may be classed as waste if deemed unsuitable for use, or where no beneficial use exists (cut and fill). Re-use of excavated material on site may require exemption or authorisation from NRW prior to commencement, unless SHLNG agrees in advance that it is not waste / use secondary aggregates protocol. The Senior Environmental Engineer must be consulted well in advance on any proposal to re-use naturally occurring, clean, excavated material on site. There must be no re-use of naturally occurring excavated material on site without the prior written permission of the SHLNG Technical Services Manager.

Potential contaminated land

The site is a former oil refinery where use of cement bonded asbestos pipe work (as cable ducting) was widespread. Other contamination, such as oil, cannot be ruled out. Therefore, excavation activities will require very close supervision, to ensure swift action is taken to stop works immediately and notify the Technical Services Department if any historic cement bonded asbestos or other land contamination is found. The Site Lease contains Landlord representative notification requirements in connection with this matter and the associated redevelopment of the site.

Land on site must not be developed without the prior written permission of the SHLNG Technical Services Manager.

Discharge to site surface water drains

Site surface water drainage is regulated via release point W1 under the existing EPR Environmental Permit, which sets emission limit values, notably oil no visible trace, pH >6 to <9, turbidity, TOC and metals.

No potentially contaminated site drainage or any trade effluents may be discharged into the site drainage system, without the prior written permission of the SHLNG Technical Services Manager.

All areas of high risk of water pollution, such as excavations, cuttings/process effluents, must be fully contained/bunded etc. for legal and authorised disposal offsite. The Site Lease does not permit the introduction of any contaminants into land or the ground.

Other waste streams

Any waste generated by SHLNG that falls outside the above categories, such as the following, will be managed as described in the Section on Removal of Non-routinely Collected Waste:

- Liquid waste, including cesspit waste or contaminated bund contents.
- Dead animals.
- Spill materials contaminated with caustic.
- Large items, including furniture and large maintenance waste.
- Waste electrical and electronic equipment (WEEE)

3.14.5 Waste Compound Area

Location and equipment

The Waste Compound (East) Area, located adjacent to the Hazardous Waste Store, is for the storage of non-hazardous waste streams only. The area is equipped with 1100-litre wheeled bins for general waste and recycling.

3.14.6 Hazardous Waste Store

Management

The Hazardous Waste Store is managed in accordance with the PE.06C.01.002.00_Hazardous Waste Store Management

Contact details

The Hazardous Waste Store is managed by the Business Services Coordinator and General Services Contractor.

Hazardous waste must be taken to the Hazardous Waste Store as follows:

- Contacting the General Services manager (Mon-Fri 08:00 hours – 15:00 hours).
- Contacting the Process Supervisor (ext. 2127) out of normal working hours.

Required details

Solid and liquid hazardous waste bunded pallets are provided within the Hazardous Waste Store. The depositor is responsible for placing the hazardous waste into a quarantined box, which is located to the right hand side of the main entrance door. Details of the waste should then be entered into the Waste Entry Book, which is located above the box. The following details must be provided:

- Item number and date.
- Description and source of waste.
- Depositor's name, department and signature.

Use of equipment

The General Services Manager should be contacted if it is necessary to use any of the following equipment:

- 5-litre and 25-litre containers (for decanting purposes).
- Bunded pallets for drums and IBCs (intermediate bulk containers).
- Spill management equipment, including shovels, rope and brooms.

After use, all equipment must be returned to the store where it will be emptied, cleaned and prepared for re-use.

Hazardous wastes must not be mixed with other incompatible hazardous wastes or with non-hazardous waste.

The Business Services Coordinator along with the General Services Contractor will schedule collection of the waste oil container when required. When this container is being emptied, all vehicles involved must be parked, as far away as reasonable practicable, such that all parts that pose a high risk of pollution (hoses, couplings etc.) are located within the bunded hazardous waste store.

3.14.7 Removal of Non-routinely Collected Waste

Non-routine waste collection

This section describes how to arrange for the collection and removal of non-routinely collected wastes from site, including the following waste streams:

- Cesspool waste.
- Contaminated waste liquids from within oil and caustic tank bunds.
- Petrol/oil interceptor waste.
- Other non-routine waste types (for example; large items, large quantities of hazardous or difficult waste, reverse osmosis CIP waste waters).
- Planned maintenance waste and any other non-scheduled waste collections.

The Business Services Coordinator along with the General Services Contractor should be contacted to obtain a cost proposal and arrange collection and disposal of any unscheduled waste stream.

Contact details are provided in Appendix 6.

Once the arrangements for disposal have been agreed, the General Services Contractor will liaise with the requesting department to arrange for the waste to be removed.

The mechanisms in place for identifying when the above streams require emptying are described below, and are in addition to site inspections. High-level alarms and triggers for emptying cesspools and interceptors are set at 60%; and at 10% for bunds. Cesspools, interceptors or bunds will require emptying when their levels reach the high-level alarm or trigger.

If the high-level alarm is raised, or the trigger for emptying being exceeded, or other non-scheduled waste collection is required, the Business Services Coordinator/ General Services Contract Manager should be contacted to arrange for collection and disposal.

Waste removals shall be conducted in accordance with all relevant policies, procedures, Site Rules and Safe Systems of Work including Permit to Work (PTW).

The General Services Contract Manager is responsible for ensuring that required details of all waste movements are entered into the Waste Register, where they will be subject to periodic audit.

3.14.8 Emergency Out-of-hours Waste Management

First point of contact

In the event of a waste management emergency occurring outside of normal working hours, the Business Services Manager should be contacted, who will then arrange the appropriate response.

3.14.9 Waste Handling Methodology

Hazardous, routine and non-routine waste

Waste management begins when a substance or object is identified as waste by the producer or holder. Waste is defines as anything the holder discards, intends to discard, or is required to discard.

Routine, non-hazardous office or site waste must be segregated and deposited into the correct local receptacle or bin, and must be recycled wherever possible.

For non-routine and/or hazardous waste, contact the Business Services Coordinator/ General Services Contract Manager to arrange for collection.

Collection and storage details

Office bins, Site bins and receptacles containing non-hazardous waste are collected by the General Services Contractor and taken to central collection points on site.

Non-routine, non-hazardous waste is collected by the General Services Contractor and taken to central points on site. Hazardous waste is removed to the Hazardous Waste Store for safe storage.

The General Services Contractor manages the collection of waste from the central collection points and the Hazardous Waste Store and ensures waste is taken for recovery or recycling wherever possible.

SHLNG's waste handling methodology is illustrated in Figure 3 below.

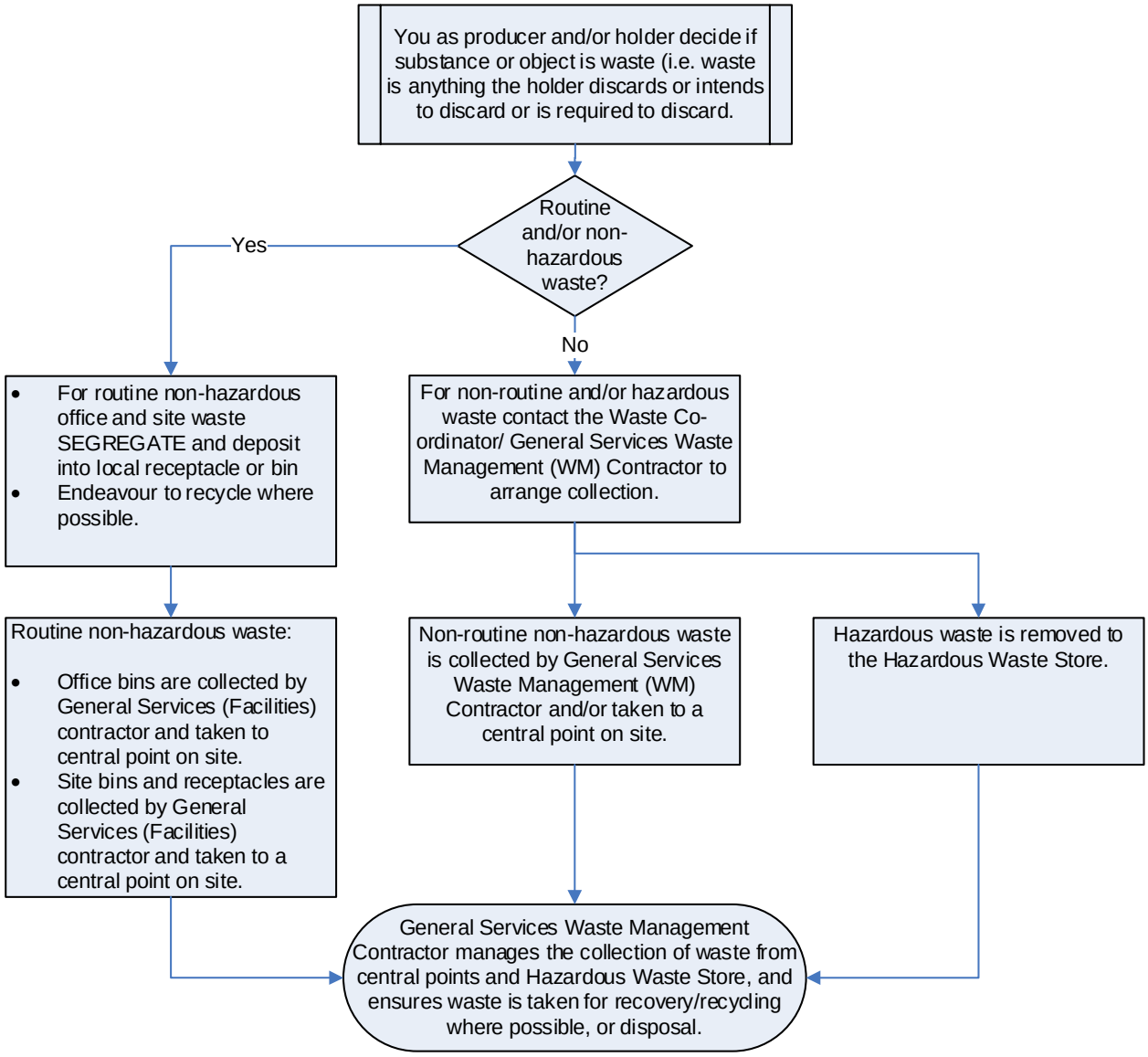


Figure 3. Waste Handling Methodology

Removal from site

The Table 12 below describes how the General Services Contractor handles waste prior to collection.

Step	Action
1	Business Services Coordinator/ General Services Contract Manager requests for waste to be collected, in accordance with the Section on Removal of Non-routinely Collected Waste.
2	General Services Contract Manager completes works instruction and makes necessary arrangements (PTW etc.) for waste carrier to visit Terminal and collect waste. **Note:** Waste collections will generally only be made Monday to Friday between 08:00 and 14:00 hours. Drivers will not be allowed on-site without a valid instruction to work and, where necessary, approved permit to work.
3	The collecting driver reports to Security and asks for the General Services Contractor operative to receive full detailed instructions of the collection.
4	The waste carrier signs and hands over a duty of care transfer note before leaving site
5	General Services Manager ensure that the waste transfer is scanned and issues to the Waste Management Contractor for entry into the Waste Register as soon as practicable, including transfer note reference number.
6	The General Services Contractor scans all relevant waste documentation for the movement and files the documents to the LAN.
7	Waste Management Contractor ensures invoicing is complete in accordance with relevant contractual agreement.

Table 12. General Services Contractor Waste Management Duties Prior to Waste Collection

3.14.10 Waste Minimisation

Records of raw materials used and waste hierarchy

Waste generation is considered at the early stage of materials selection and is described in the Section of this manual on Raw Materials.

The EPR Environmental Permit requirements are specified in the following permit conditions:

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.

Audits and Reporting

Audits of the Waste Management Contractor and sub-contractors are undertaken periodically to check for compliance with legal obligations, in accordance with the 'Environmental Audit Plan' stored on the Lan.

3.14.11 Waste Re-use, Recycling and Recovery

Evaluation of waste

All wastes should be re-used, recycled or recovered wherever this is practical. Measures to move up the waste hierarchy are recorded within the Waste Register.

The General Services Contractor and the Business Services Coordinator will evaluate any new or non-routine waste to see if it has potential for re-use, recycling and recovery, and will update the Waste Register accordingly.

3.14.12 Duty of Care and Waste Records

Management of waste documentation

The management of Duty-of-Care documentation and waste records is administered by the Business Services Coordinator and General Services Contractor. These records are reviewed on a regular periodic basis.

The waste disposal sites used for SHLNG's waste will be periodically reviewed by the General Services Contractor to confirm systems are in place to comply with legal and other requirements. The General Services Contractor will periodically check the route of waste loads to ensure they are as stipulated on the applicable transfer note.

All documentation relating to the management of waste relating to SHLNG must be retained for 2 years for non-hazardous wastes and 3 years for hazardous waste and be available for inspection by Natural Resources Wales (NRW).

The EPR Environmental Permit requirements are specified in the following permit conditions:

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.

SHLNG has a Duty of Care for all waste disposed by, or on behalf of, SHLNG

Contractor / Project Wastes

Controlled wastes will be managed by the third-party contractor, or via SHLNG General Services Contract.

The vendor/supplier is the individual, partnership or company with whom a contract is placed and has responsibility for disposing of waste materials must:

1. Submit to the Business Services Coordinator/ General Services Contract Manager a Site Waste Management Plan covering the estimated amount of waste to be generated from their scope of works, using a copy of the SHLNG Site Waste Management Plan Form (FM.06C.01.000.01). This information is required as soon it becomes available, and must be submitted prior to the commencement of works on site.

Where it is agreed that wastes are to be managed by the third-party contractor, the third-party contractor individual, partnership or company with whom the contract has been placed must:

2. Submit to the Business Services Coordinator, by the 7th day of the following month, a monthly summary report using a copy of the SHLNG Contractor Waste Management Data Form (FM.06C.01.000.08), highlighting the previous month's waste management performance. The report will include a summary of the previous month's recycling rates and disposal activities, and a copy of all relevant duty-of-care transfer notes.

   SHLNG Business Services Coordinator will be responsible for ensuring that all reports received are correctly filed on the SHLNGLAN , that they are periodically reviewed to check for compliance with regulatory and site requirements and will maintain a waste register in the format agreed.

3. At the end of the project works, or by 14 January each year for on-going contracts submit to the Business Services Coordinator a completed SHLNG Site Waste Management Plan Review Form (FM.06C.01.000.05). This compares the contractor's waste management performance with that predicted in the initial Site Waste Management Plan Form.

The process above may also be used, as required, for specific SHLNG projects as part of the project planning process.

SHLNG Business Services Coordinator will be responsible for ensuring that all reports received are correctly filed on the SHLNG LAN, that they are periodically reviewed to check for compliance with regulatory and site requirements.

Waste Register

The Waste Register is maintained by the Waste Management Contractor and updated as required.

The Waste Management Contractor updates the Waste Register with the details of each waste transfer

The following Table 13 describes the various spreadsheets within the Waste Register.

Sheet	Description
Overview	Provides specific waste management reference details for each waste stream managed on site. This record is updated as required, for instance when a new waste stream is collected or recognised at SHLNG.
Contractor Summary	Contains the details for waste management contractors working on site at SHLNG. The same table is used for waste carriers, brokers and disposal sites. The Contractor Summary is updated as required.
Annual Summary	Provides a snap shot of waste movements for the current calendar year.
WM (monthly)	Completed by the Waste Management Contractor Waste to record waste movement and returned to SHLNG on a monthly basis, along with the invoice. These sheets are then copied into the Waste Register by the Waste Management Contractor to provide a monthly analysis of waste produced at SHLNG. It is important that each waste listed in the WM sheets is referenced back to the Fee Schedule.
Sum (monthly)	Completed by the Waste Management Contractor to provide a monthly summary and returned to SHLNG on a monthly basis, along with the invoice. These sheets are then copied into the Waste Register by the Waste Management Contractor to provide a monthly summary of waste produced at SHLNG. The monthly summary sheets are used to compile the monthly waste report.

Sheet	Description
Fee Schedule	Lists fees, as quoted in the General Services Contract. These lines must be referenced within the Waste Movement sheets. The Waste register is reviewed periodically by the Senior Environmental Engineer and the Business Services Coordinator to ensure that it is meeting the requirements of SHLNG.

Table 13. Waste Register Spreadsheet Description

3.14.13 Inspection

Management of waste storage facilities

The General Services Contract Owner (The Business Services Manager) and General Services Contract Manager (the Business Services Coordinator) are responsible for the management and maintenance of the waste storage facilities, as defined in the General Services Contract, including making the following checks:

- The Business Services Manager is responsible for ensuring that General Services staff undertake routine periodic inspections (at least monthly) of key operational areas and recording the results in the SHLNG Monthly Environmental Checklist filed on the LAN.
- Waste storage containers and designated areas are clearly labelled to identify the waste type and health and safety symbol, if appropriate.
- Wastes are stored in the correct containers and locations.
- Hazardous wastes are maintained separately from non-hazardous wastes and that incompatible hazardous wastes are not mixed.
- Storage containers are appropriate to, and compatible with, the waste that is stored.
- All liquid hazardous wastes and other wastes with potential to pollute the land, surface water or groundwater are stored in areas with secondary containment.
- The integrity of impervious bases, bunds and containers.
- Waste containers are securely positioned to prevent damage or overturning.
- Leaks and spillage are dealt with promptly and in accordance with the appropriate spill procedure.
- Measures are in place to prevent waste escaping (e.g. blowing or falling) during handling or storage.

The Business Services Manager supported by the Business Services Coordinator will review the performance of the Waste section of the General services Contractor at least annually, as required.

3.14.14 Reporting and Communication

Frequency of reporting

The following Table 14 below describes the requirements for reporting and communication details of SHLNG's waste management operations.

Report/Communication	By	To	Schedule/Frequency
Selection and monitoring of waste carriers and disposal sites.	General Services Contractor	Business Services Coordinator	At least annually
Periodic Inspection (at least monthly) of SHLNG's storage and handling facilities and other key Operational Areas and recording the results in the SHLNG Monthly Environmental Checklist filed on the LAN.	General Services Personnel	Senior Environmental Engineer	Monthly
Update the waste register and the waste hazard and disposal scores.	General Services Contractor	Senior Environmental Engineer & Business Services Coordinator	Quarterly
Waste performance reporting to Natural Resources Wales.	Senior Environmental Engineer	Technical Services Manager	Annually in January, or as otherwise required by legal requirements
Communicate waste management activities and performance.	Business Services Manager & Business Services Coordinator	All relevant personnel	As required

Table 14. SHLNG's Waste Management Reporting Requirements

Reporting to regulatory and other authorities must be in accordance with the section of this manual on Environmental Reporting and Notification.

3.14.15 General Services Contractor Waste Management Requirements

General compliance

The General Services Contractor must comply with legal requirements, permitting requirements and all relevant SHLNG procedures at all times, including the following:

- EPR Environmental Permit
- Site Lease Agreement
- This manual, including the section on Waste Management

3.15 Nature Conservation Area Management

Purpose

The purpose of this section is to describe how SHLNG manages the Nature Conservation Area (NCA) and ensure that Section 106 Town and Country Planning Act 1990 requirements are met.

As part of the Planning Permission (Ref No: NP/03/225) granted by Pembrokeshire Coast National Park Authority (PCNPA) in 2003, SHLNG entered into an agreement with PCNPA pursuant to Section 106 of the Town and Country Planning Act. The agreement, referred to as the Section 106 Agreement, contains a series of planning obligations relating to the NCA, one of which is the implementation of an NCA Management Plan.

In line with Annex 2 of the Section 106 Agreement, this document and its appendices constitute the working NCA Management Plan and address the following requirements:

- Responsibilities of key personnel (including the Conservation Trustee).
- Section 106 planning obligations.
- Regulatory requirements within the Nature Conservation Area.
- Habitat and species conservation activities.
- Stakeholders register and liaison.
- Reporting on the Nature Conservation Area.
- Financial provision.
- Access to the Nature Conservation Area.

A copy of the Section 106 Agreement is available on the I:Drive (Accessible Environmental Info).

3.15.1 Additional Responsibilities

General Manager

The General Manager, as Conservation Trustee, will be responsible for ensuring the following:

- The overall implementation of this procedure (the NCA Management Plan) throughout the term of operation of SHLNG.
- The day-to-day implementation of the NCA Management Plan.
- Ensuring that activities and decisions address Section 106 Planning Obligations.
- Convening meetings, as necessary, with key or local stakeholders throughout each year.
- Reviewing, approving and issuing reports in accordance with Section 106 Town and Country Planning Act 1990 requirements (i.e. Annual Report and Quinquennial Report).
- Convening an annual meeting to consider the annual report, review nature conservation and formulate a programme of activities for the following year.
- Ensuring costs associated with this procedure are allocated in the annual operating budget and featured accordingly in the annual programme of activities, if appropriate.
- Preparing cost estimates for activities associated with this procedure.
- Reviewing and implementing experimental or exploratory activities as considered necessary in consultation with key or local stakeholders.
- Reviewing progress on the NCA programme of activities

Technical Services Manager

Technical Services Manager will be responsible for:

- Ensuring that this procedure is fully implemented and that all parties involved are fully aware of their responsibilities associated with this procedure.
- Ensuring costs associated with this procedure are allocated in the annual operating budget and featured accordingly in the annual programme of activities, if appropriate.
- Preparing cost estimates for activities associated with this procedure.

Senior Environmental Engineer

The Senior Environmental Engineer will be responsible for the following:

- The day-to-day implementation of the NCA Management Plan.
- Ensuring that activities and decisions address Section 106 Planning Obligations.
- Convening meetings, as necessary, with key or local stakeholders throughout each year.
- Reviewing, approving and issuing reports in accordance with Section 106 Town and Country Planning Act 1990 requirements (i.e. Annual Report and Quinquennial Report).
- Convening an annual meeting to consider the annual report, review nature conservation and formulate a programme of activities for the following year.
- Preparing cost estimates for activities associated with this procedure.
- Reviewing and implementing experimental or exploratory activities as considered necessary in consultation with key or local stakeholders.
- Reviewing progress on the NCA programme of activities
- Ensuring that this procedure is fully implemented and that all parties involved are fully aware of their responsibilities associated with this procedure.
- Planning and co-ordinating the day-to-day implementation of this procedure and associated programme of activities.
- Co-ordinating the environmental management of the NCA.
- Preparing terms of reference, planning and co-ordinating nature conservation activities.
- Co-ordinating and attending meetings with key and local stakeholders.
- Reporting on the status of this procedure and programme of activities to the General Manager.
- Preparing the annual report on the implementation of this procedure and programme of activities.
- Preparing the Quinquennial Report on nature conservation of the NCA. Copies of which will be provided to all local stakeholders.
- Planning and co-ordinating the annual meeting, which will consider the Annual Report, nature conservation of the NCA and the programme of activities to be implemented during the following year.
- Maintaining the Nature Conservation Area Stakeholders Register and Programme of Activities.
- Approving third-party access (i.e. special interest groups, local stakeholders, educational groups) and access by SHLNG personnel and sub-contractors to the NCA.
- Co-ordinating third-party access to the NCA and either escorting third-parties or arranging for them to be escorted.

3.15.2 Section 106 Planning Obligations

Extract from Agreement

The extract in following Table 15, taken from the Section 106 Agreement, describes the planning obligations for which the Conservation Trustee is responsible for ensuring that SHLNG addresses.

The Conservation Trustee is responsible for ensuring that SHLNG addresses the planning obligations listed in table 15, which have been extracted from Section 8 Planning Obligations - Nature Conservation of the Section 106 Agreement.

Paragraph No.	Requirement
8.1	Esso and SHLNG hereby jointly and severally covenant with the Authority as follows:-
8.1.1	to render all reasonable assistance to the Authority to have that part of the Pembrokeshire National Trail which crosses the Site designated as a public footpath;
8.1.2	to reopen the stopped up footpath crossing the agricultural land to the north of the Site and to enter into an agreement with the relevant highway authority (in such reasonable form as they may require) dedicating that path as a public footpath;
8.1.3	not to use the Nature Conservation Area other than as an area for nature conservation;
8.1.4	to fence the site of the Development with high security grade fencing with security cameras at appropriate locations;
8.1.5	to fence the Nature Conservation Area with appropriate grade fencing sympathetic to its location;
8.1.6	to appoint a Conservation Trustee to steward and oversee the undertaking of low key implementation of the Nature Conservation Area Management Plan set out in Annex 2 hereto;
8.1.7	to implement the Nature Conservation Area Management Plant throughout the term of the operation of SHLNG Terminal;
8.1.8	to bear all costs associated with the obligation assumed and undertaken in the implementation of the Nature Conservation Area Management Plan;
8.1.9	to use reasonable endeavours to procure that the Conservation Trustee gives due regard to proposals for improvement to the Nature Conservation Area Management Plan put forward by local stakeholders and other interested parties from time to time provided that the costs are consistent with low key nature conservation of the Nature Conservation Area.

Table 15. Summary of Conservation Trustee Responsibilities

All one-off obligations have been discharged by the Company. The remaining on-going obligations will be implemented throughout the operation of SHLNG via this SHEMS system 6-C.

3.15.3 Regulatory Requirements within the Nature Conservation Area

Requirements specific to the NCA

The NCA is dedicated solely for nature conservation by the Section 106 Agreement.

The following points highlight specific regulatory requirements that are relevant to this procedure:

- No alterations shall be made to any buildings comprising SHLNG Fort and Fortifications, or any land disturbed within the vicinity of these buildings, without obtaining in advance Scheduled Ancient Monument (SAMS) Consent from CADW.
- The fortifications at SHLNG constitute one of the most important sites for greater horseshoe bats in Wales. In addition to greater horseshoe bats, the fortifications are used by several species of bats, including lesser horseshoe, brown long-eared, pipistrelle and myotis bats throughout the year. All British bats and their resting places are strictly protected at all times under European and UK law.
- Any individual wishing to enter the fortifications (above or belowground) must have an appropriate licence, i.e. a scientific/conservation licence from NRW.
- Damaging or destroying a bat roost is a strict liability offence under the Conservation of Habitats and Species Regulations 2010. It should be noted however that a “Welsh Assembly Government (WAG) derogation licence” enables work to be undertaken that would otherwise constitute an offence. Applications for such a licence must be made to the Welsh Assembly Government (WAG) European Protected Species Licensing Team at the WAG offices in Aberystwyth.
- In order to ensure best practice and compliance with both the European and UK legislation, NRW must be consulted by anyone wishing to enter the fortifications before doing so, or before any work is carried out within the fortifications or in the close vicinity of the fortifications.

Key points from EU / UK legislation

Key points from the relevant legislation are listed below.

EU Habitats Directive

- All British bats are European Protected Species. In respect of bats, under the Conservation of Habitats and Species Regulations 2010, it is an offence to:
  - Deliberately capture, injure or kill any animal of a European Protected Species;
  - Deliberately disturb wild animals of any European Protected Species;
  - Damage or destroy a breeding site or resting place of wild animals of any European Protected Species.
- Disturbance is defined as that which is likely to:
  - Impair their ability to survive, breed or reproduce or to rear or nurture their young;
  - Impair their ability to (in the case of bats) hibernate;
  - Significantly affect the local distribution and/or abundance of the species to which they (i.e. the bats) belong.

UK legislation

- All British bats are included in Schedule 5 of the Wildlife and Countryside Act 1981 as amended and are protected at all times. In respect of bats, under the Wildlife and Countryside Act 1981 as amended, it is an offence to:
  - Intentionally or recklessly damage or destroy any structure or place which bats use for shelter and protection;
  - Disturb bats whilst they are occupying a structure or place which they are using for shelter or protection; or

  - Obstruct access to any structure or place which bats use for shelter and protection.

- Any land use changes (such as building/ fencing works), including the erection of any required perimeter fencing, will need separate approval from local planning authorities; Pembrokeshire County Council (PCC) and/ or PCNPA.
- Any land use changes (such as building/ fencing works) will need prior written approval from SHLNG's landlord.

3.15.4 Nature Conservation Area Management Plan

Introduction

This section addresses the main aims, objectives and activities that will ensure the NCA Management Plan is implemented throughout the term of operation of the Terminal, as required by Annex 2 of the Section 106 Agreement.

Implementation of activities outlined within this document will be low key, involve minimal active management and give due regard to the landscape value of the NCA and archaeological significance of the iron-age fort.

Since the decommissioning of the former Esso Refinery, the NCA has recolonised successfully with little interference. The intention is to steward and monitor continued development of habitats in the area.

The monitoring programme has been developed to involve local stakeholders and provide opportunity for local stakeholders to visit the site as appropriate. Monitoring events provide opportunities for local stakeholders to liaise and consult with PCNPA and SHLNG.

Overall aim and objectives

The aim of the Nature Conservation Area Management Plan is to maintain a mosaic of habitats that provide opportunities for a variety of flora and fauna, with the overall objective of maintaining the following key features, with emphasis placed on structural diversity, where appropriate:

- Freshwater aquatic habitat (including wetland margins and spring-line flushes).
- Semi-improved neutral grassland.
- Scrub.
- Bare open ground colonised by therephytic and early colonising plant communities.
- Scare and/or protected species (barn owls, bats, badgers, herptiles).
- Species assemblages (invertebrates, breeding birds, wintering and migratory birds).

Habitat and species conservation activities

The Section 106 Agreement details the following requirements:

The following habitat and species conservation activities may be undertaken:

- Occasional scraping of selected areas to maintain open, bare ground supporting early successional plant communities.
- Low-key grazing, as and when required, supplemented by cutting/mowing.
- Monitoring and surveillance of features, including water quality sampling, species monitoring, continuation of The Wetland Bird Survey (WeBS) counts, bat roosts.

The SHLNG Nature Conservation Area Stakeholders Register and Programme of Activities, as outlined will be the main planning tool for recording and scheduling management and monitoring activities.

This tool will be reviewed and updated annually, and as necessary, in consultation with PCNPA.

The Senior Environmental Engineer will be responsible for updating and maintaining the Nature Conservation Area Stakeholder Register and Programme of Activities.

Liaison with stakeholders

The Section 106 Agreement forms an agreement between the following parties:

- Pembrokeshire Coast National Park Authority (PCNPA).
- SHLNG Terminal Company Ltd (SHLNG).
- Esso Petroleum Company Limited.
- Citicorp Trustee Company Limited.

Throughout the agreement, reference is made to liaison and consultation with local stakeholders. There is, however, no reference or description of individuals within this category, and therefore, the following approach has been agreed with the PCNPA to ensure meetings and consultations are conducted effectively.

Meetings with the Nature Conservation Area Management Group

After the inaugural meeting, annual meetings will be held between PCNPA, SHLNG and Esso (NCA Management Group). Citicorp Trustee Company Ltd will be informed of the inaugural and annual meetings and provided with minutes.

PCNPA and SHLNG will be the key stakeholders in managing the day-to-day implementation of the NCA Management Plan.

Local stakeholders are considered to be experienced local ecologists and local members of the community who have an interest in the NCA. PCNPA will represent local stakeholders at NCA meetings relaying their views on future management options and liaising with them, as appropriate.

Views of local stakeholders and other interested parties will be considered by the NCA Management Group.

Contact details of all stakeholders, consultants and contractors involved in the management of the NCA are maintained in the section on the Nature Conservation Area Stakeholders Register and Programme of Activities.

Inaugural and annual meetings

During the first year of operation, the Conservation Trustee convened an inaugural meeting of the NCA Management Group on 18th January 2011. This meeting focussed on the requirements within the Section 106 Agreement. :

The Conservation Trustee will invite the NCA Management Group to annual meetings to consider the annual report, discuss the management of the NCA and participate in the formulation of a programme of activities to be undertaken in the following year.

The Senior Environmental Engineer will co-ordinate the logistics for the Annual NCA Management Meeting and updates the Programme of Activities for NCA management for the following year.

Further meetings may be convened throughout the year, as required, in consultation with relevant stakeholders.

Reporting on the Nature Conservation Area

The Senior Environmental Engineer will prepare a brief annual report summarising the implementation of the NCA Management Plan and activities performed during the year entitled; the SHLNG Terminal Annual Report on NCA Management.

The Senior Environmental Engineer is also responsible for preparation of a 5-yearly report on the ecological status of the NCA, based on the monitoring and management work implemented. When approved by the Conservation Trustee, copies of the report are sent to all the relevant stakeholders.

Financial provision

The necessary costs associated with implementation of this procedure will be made available by SHLNG.

The Conservation Trustee will, on an annual basis, be responsible for ensuring the preparation of cost estimates associated with the agreed Programme of Activities for NCA Management and that these costs form part of and are allocated in the annual operating budget.

Flexibility

This document identifies the key features and objectives of the Nature Conservation Area in broad outline principle terms. It is acknowledged, given the natural state of the NCA, that it is impractical to define the NCA Management Plan in precise prescriptive terms, and that a comprehensive element of flexibility is critical to the successful implementation of any management plan for the NCA.

In implementing this procedure, the Conservation Trustee will, in consultation with the key and local stakeholders as necessary, conduct such experimental or exploratory activities as considered necessary or desirable. The Conservation Trustee will review the effectiveness and success of such activities with stakeholders to determine whether an activity should be continued, changed or abandoned during successive years.

Further experimental or exploratory activities may be proposed by key or local stakeholders from time to time for consideration by the Conservation Trustee.

Impact of development outside the Nature Conservation Area

During site construction there was a requirement, under the Section 106 Agreement, for fauna to be translocated from the "development site" to the NCA. This requirement also applies after this development phase.

SHLNG will adhere to the following requirements specified in the Section 106 Agreement:

The civil construction works to be undertaken in the development of the SHLNG Terminal adjacent to the Nature Conservation Area will have impacts for both the area under development and the Nature Conservation Area during the development period itself and also thereafter.

SHLNG Terminal Company Ltd will therefore undertake the following in this regard:

- Translocation of the fauna from the development site into the Nature Conservation Area and monitoring of the long-term success of the translocated species i.e. badgers, grass snakes, adders (potentially), slow worms and common lizards.
- Maintenance of habitat in the Nature Conservation Area for foraging species displaced from traditional feeding areas within the development site.

Rights of access

Internal Access Arrangements

Access to the NCA is restricted and, with the exception of daily security patrols, access is only permissible with prior approval from the Senior Environmental Engineer.

‘Low key’ recreational walking by South Hook staff around the perimeter road in the NCA, when the ponies are not present, has been approved by Pembrokeshire Coast National Park Authority (PCNPA), and was commenced by SHLNG on 28 May 2019.

In the event of receiving a request from personnel or a third party to access the NCA, Security must first contact the Senior Environmental Engineer with details of the activity to be performed and the names of the personnel and/or company requesting access.

The Senior Environmental Engineer contact details are provided appendix 6.

Only activities directly related to conservation and which do not cause any disturbance or have any adverse environmental impact on the NCA will be permitted within the NCA.

If access is approved by the Senior Environmental Engineer, Security Site Rules are applicable (refer to the relevant Site Notices on Walking within the Nature Conservation Area).

All personnel entering the NCA must inform SHLNG security before they enter **and** after they leave the NCA. This can be done via visiting security Gatehouse, phoning Security on Ext. 2181, or via radio.

External Access Arrangements

This procedure aims to improve current rights of access to the NCA, consistent with general principles of nature conservation, health and safety and security. Therefore, access to the NCA is permitted for special interest groups, including local authorities, local stakeholders and nature conservation groups, and ecological groups or educational groups, such as colleges, schools and the Women's' Institute.

Individuals or groups requiring access to the NCA must send a written request to the Senior Environmental Engineer who will then determine whether access should be granted. If access is granted, the Senior Environmental Engineer will be responsible for contacting the requesting individuals or group, co-ordinating their visit, and ensuring that they are escorted at all times whilst in the NCA and at the Terminal.

The current right of way along the Pembrokeshire Coastal Path does not permit access to the NCA; however, the path does pass along the perimeter fence between the NCA and the Haven and this part of the path affords views of the NCA, including SHLNG Fort. No proposal is made with the Section 106 Agreement to alter the status quo in this regard.

3.16 Environmental Monitoring

Purpose

The purpose of this section is to describe the mechanisms by which SHLNG will monitor environmental parameters, as required by the environmental permits to operate.

3.16.1 Additional Responsibilities

Operations Manager

The Operations Manager is responsible for the following:

- The overall operation of the Terminal including the oversight and management control of process variables and emissions
- Ensuring overall compliance of Terminal operations, including compliance with SHLNG's environmental permits to operate.
- Ensuring that SHLNG employs the Best Available Techniques (BAT) and works to these exacting standards.
- Ensuring that personnel implement all relevant operational procedures, work instructions and guidance, including those directly associated with this procedure.
-

Technical Services Manager

The Technical Services Manager is responsible for the following:

- Ensuring that the requirements of this procedure are implemented by the Senior Environmental Engineer, relevant personnel and specialist contractors.
- Supporting the provision the flaring mass release calculations, quantifying the mass of natural gas vented from the installation and providing fugitive emissions reports, as part of ensuring compliant operations

Senior Environmental Engineer

The Senior Environmental Engineer is responsible for the following:

- Overseeing monitoring activities.
- Obtaining continuous monitoring data for emissions to air and water from PIMS and process for reporting.
- Obtaining other data to assess emissions from operations.
- Reviewing methodologies and safe working practices for monitoring by specialist contractors and overseeing their monitoring activities.
- Obtaining monitoring data output and process for reporting.
- Supporting the provision of appropriate training is, where deemed appropriate, to ensure the continued competence necessary to implement the requirements of this manual

Engineering Technician

The Engineering Technician is be responsible for the following:

- Calculating and reporting flaring and venting emissions, mass release calculations and other required emissions information to the Senior Environmental Engineer for entry into the Flaring and Venting Register and required emission reports

Maintenance Superintendent

The Maintenance Superintendent is be responsible for the following:

- The continual development and implementation of SHLNG's planned preventative maintenance (PM) strategy, and for ensuring that the PM programme is fit for purpose and meets all legal requirements.
- Designing and implementing maintenance procedures and work instructions to ensure that the plant and equipment used for monitoring Terminal activities are maintained, calibrated and operating correctly. This includes organising and attending appropriate training, ensuring agreed breakdown response timescales are met, and keeping appropriate records to demonstrate compliance with these requirements.
- Ensuring that the non-availability of any statutory meters or environmental monitoring data is reported without delay to the Process Supervisor, in accordance with the SHLNG sections on Environmental Controls and Environmental Reporting and Notification.
- Ensuring that the continuous emission monitoring systems (CEMS) are calibrated according to manufacturers' recommendations and where appropriate by a specialist contractor with appropriate accreditation, and that records of all calibrations are maintained.

Maintenance Personnel

Maintenance personnel will be responsible for the following:

- Implementing maintenance procedures and work instructions to ensure that the plant and equipment used for monitoring Terminal activities are maintained, calibrated and operating correctly.
- Attending appropriate training and ensuring agreed breakdown response timescales are met.

Process Supervisors

Process Supervisors will be responsible for the following:

- Operational oversight and control, notifying and reporting all incidents to the Senior Environmental Engineer or, if unavailable, the Technical Services Manager, including:
  - Any breaches of ELVs.
  - The non-availability of any statutory meters or environmental monitoring data.
- Performing the relevant actions described under the
  - SHLNG Operational Guidance on Continuous Environmental Monitoring, (available on the LAN and Operator Control Panel in the Central Control Room CCR).
  - Environmental Controls section of this manual
  - Environmental Reporting and Notification section of this manual
- Recording when boil off gas is used as a fuel, when flare pilot usage commences and ends, and when flaring commences and ends

Process Operators

Process operators are responsible for the following:

- Implementing relevant procedures and work instructions to monitor those activities within the Terminal that relate to environmental performance and emissions.
- Operational oversight and control, informing the Process Supervisor without delay of any breaches of emission limit values (ELVs), or the non-availability of any statutory meters or environmental monitoring data (possibly due to meter malfunction or maintenance), in accordance with:
  - SHLNG Operational Guidance on Continuous Environmental Monitoring, (available on the LAN and Operator Control Panel in the Central Control Room CCR).
  - Environmental Controls section of this manual

– Environmental Reporting and Notification section of this manual

Laboratory Monitoring Contractor (LMC)

The Laboratory Monitoring Contractor (LMC) will be responsible for the following:

- Ensuring that all emissions monitoring and environmental analysis is fit for purpose, as defined by the requirements of the EPR Environmental Permit.
- Completing and documenting all necessary method validation tests according to MCERTS requirements and the Terminal's EPR Environmental Permit (Permit Number EPR/XP3538LD), to the satisfaction of SHLNG and regulator Natural Resources Wales.
- Ensuring that all CEMS performance testing and validation is carried out by an MCERTS accredited vendor, and that equipment used is validated in accordance with MCERTS/ ISO17025 requirements by personnel who are appropriately trained and certified.
- Notifying (verbal and by e-mail) the Senior Environmental Engineer without delay of any failure to undertake contractual obligations for emissions monitoring as, as described in the laboratory monitoring contract and as required by the EPR Environmental Permit.
- Entering data into the Exaquantum database, via PIMS Manual Input spreadsheet, and providing monitoring certificates to SHLNG in accordance with agreed processes and timescales.
- Notifying the Process Supervisor (verbally and via e-mail) without delay on any breaches of an emission limit value (ELV) or other trigger action alarm, in accordance with this manual, including sections on Environmental Controls and Environmental Reporting and Notification. All such e-mails must be flagged as high importance, copied to the Senior Environmental Engineer and followed up with a phone call and/or face to facecommunucation.
- Updating and providing SHLNG monitoring programmes, site-specific protocols, monitoring procedures, method statements and associated health and safety risk assessments.
- Providing all necessary support and information in a timely manner, requested by SHLNG, to ensure continued compliance with relevant environmental permits.

3.16.2 Introduction

Emissions monitoring programmes

SHLNG implements emissions monitoring programmes to ensure that emissions to air and water are monitored as specified in the EPR Environmental Permit. These monitoring programmes are described below:

The EPR Environmental Permit requirements are specified in the following permit conditions:

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.

3.2.1 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.

3.5.1 The operator shall, unless otherwise agreed in writing by Natural Resources Wales, undertake the monitoring specified in the following tables in schedule 3 to the 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**.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.

Monitoring equipment, techniques, personnel and organisations used for the emissions monitoring programmes specified in the EPR Environmental Permit (Condition 3.5) must have either MCERTS certification or MCERTS accreditation, as appropriate, unless otherwise agreed in writing with Natural Resources Wales. The emissions monitoring programme must be in accordance with the Operator Monitoring Assessment (OMA) Guidelines, as described in Environment Agency Technical Guidance Notes M1, M2 and M18, as amended. These guidance notes also include information on competency certification of the personnel monitoring emissions to air and water, with reference to the Environment Agency documents, Personnel Competency Standard for Stack-emission Monitoring and Minimum Standards for Self-monitoring of effluent flow.

The emissions monitoring programme includes continuous emission monitoring systems (CEMS), achieved using MCERTS-certified equipment, unless otherwise agreed in writing with Natural Resources

Wales. This equipment is calibrated by specialist personnel and/or where necessary, contractors with appropriate accreditation.

The emissions monitoring programme includes periodic discontinuous monitoring, of emissions to air and water, which is performed via the Laboratory Monitoring Contractor using a combination of on-site and off-site laboratories, and MCERTS qualified staff, where appropriate. The Laboratory Monitoring Contractor, works closely with the Environment personnel, has adequate qualifications and training.

In accordance with the EPR Environmental Permit (Condition 4.1) and the requirements of the SPMP, the Laboratory Monitoring Contractor will maintain records of all monitoring, periodic and continual calibrations, examinations, tests and surveys, together with assessments or evaluations made on the basis of data obtained. Monitoring methods will, where applicable, be as specified in the EPR Environmental Permit and relevant guidance.

Where manual monitoring indicates non-compliance with any permit condition, regulatory or other legal requirement, non-conformance with any other requirement, or any anomalous data, then re-sampling may be conducted as soon as practicable. This will reduce the likelihood of recording anomalous data.

3.16.3 Continuous Emissions Monitoring Systems Equipment and Data

DCS control panel monitoring

Continuous emissions monitoring systems (CEMS) data is displayed in real time in the environmental screen in the Distributed Control System (DCS) control panel in the CCR. Further guidance on alarms and actions to be taken is provided in the:

- SHLNG Operational Guidance on Continuous Environmental Monitoring, (available on the LAN and Operator Control Panel in the Central Control Room CCR).
- Environmental Controls section of this manual
- Environmental Reporting and Notification section of this manual

The data is reported by running the PIMS Environmental Report spreadsheet, available on the LAN

3.16.4 Sampling Methods

Industry best practices

The sampling methods specified in the EPR Environmental Permit and in Natural Resources Wales guidance are subject to continual improvement. SHLNG has performed a gap analysis to align the sampling methods used with industry-accepted best practice and BAT for the Terminal.

3.16.5 Monitoring Emissions to Air

SCV exhaust stacks

Nitrogen Oxides

Nitrogen oxides (NOx) concentrations are monitored in the exhaust stacks of two SCV units, using continuous emission monitoring systems (CEMS).

Data from this system is transmitted continuously, via the DCS, to the Central Control Room (CCR), where they are stored and processed by the Plant Information Monitoring System (PIMS). PIMS maintains a NO_X data log and calculates the information required by the EPR Environmental Permit.

The concentrations from these two SCVs are also manually measured on a quarterly basis to provide a comparative accuracy check of CEMS equipment. This monitoring is conducted via the Laboratory Monitoring Contractor.

NOx concentrations in the exhaust stacks of the remaining thirteen SCVs are manually monitored quarterly. This monitoring is undertaken via the Laboratory Monitoring Contractor.

Carbon Monoxide

Quarterly manual monitoring of carbon monoxide (CO) is conducted on all fifteen SCV units via the Laboratory Monitoring Contractor.

The requirements for monitoring the emissions to air from all the SCV exhaust stacks are summarised in the following Table 16. The monitoring points are installed and appropriately labelled at the 16-metre level on each of the 24-metre high SCV stacks

Source and Emission Reference Point	Parameter	Emission Limit Value (ELV)	Monitoring Frequency	Monitoring Method
SCV Exhaust Stacks (A8 and A11)	Oxides of Nitrogen	107 mg/Nm^3 (daily mean)	Continuous	Continuous to ISO 10849/ BS EN 15267-3:2007
SCV Exhaust Stacks (A1-A8 and A11-A17)	Oxides of Nitrogen	107 mg/Nm^3 (over 1 hour sampling)	Quarterly	Discontinuous to BS EN14792
SCV Exhaust Stacks (A1-A8 and A11-A17)	Carbon Monoxide	NA	Quarterly	Discontinuous to BS EN15058
Notes: *(1) Emission concentrations at reference conditions of 273 K, 101.3 kPa, 3% oxygen, dry gas (ref. Schedule 6 of the EPR Environmental Permit.)* *(2) ELVs applies only during normal steady state operations, and does not apply to transient start-up and shut-down activities.*				

Table 16. CO and NOx Monitoring of Emissions to Air from SCV Exhaust Stacks

Location	Parameter	Type of Sample / Monitoring	Standard / Test Method	Purpose
15 SCVs (A1-A8 and A11-A17)	Temperature, pressure and flue gas velocity	Quarterly Manual	BS EN 13284-1	EPR Environmental Permit, Table S3.1, requirement. Temperature and pressure is necessary for adjustment of the NOx and CO readings to the reference conditions given in Schedule 6 of the EPR Environmental Permit. Temperature and velocity necessary for calculation of mass emissions of NOx as required by Schedule 6 of the EPR Environmental Permit and the PRTR
15 SCVs (A1-A8 and A11-A17	Oxygen	Quarterly Manual	BS EN 14789 or ISO 12039	EPR Environmental Permit, Table S3.1, requirement. Oxygen concentration is necessary for adjustment of the NOx and CO readings to the reference conditions given in Schedule 6 of the EPR Environmental Permit.

Location	Parameter	Type of Sample / Monitoring	Standard / Test Method	Purpose
15 SCVs (A1-A8 and A11-A17	Moisture	Quarterly Manual	BS EN 14790 or US EPA Method	EPR Environmental Permit, Table S3.1, requirement. Moisture concentration is necessary for adjustment of the NOx and CO readings to the reference conditions given in Schedule 6 of the EPR Environmental Permit.

Table 17. Additional Monitoring of Emissions to Air from SCVs for Manual Estimation

Additional Monitoring of Emissions to Air from SCVs are also required, as shown in Table 17. As sampling frequency is relatively low and monitoring requirements are highly specialised, requiring MCERTS accredited vendors, air emissions monitoring may be subcontracted. The variables in Table 17 above, will be monitored on a routine basis. The sampling duration for manual discontinuous monitoring (DCM) as shown in Table 18.

Parameter	Sampling Method	Duration
Carbon monoxide	BS EN15058	1 x 60 minutes
Oxides of nitrogen (as NO_2)	BSEN14792	1 x 60 minutes
Oxygen	ISO12039/BSEN14789	1 x 60 minutes
Moisture	USEPA Method 4/BSEN14790	1 x 60 minutes
Flue gas velocity and temperature	BSEN13284	Spot sample

Table 18. Emissions to Air Monitoring Duration for Manual Sampling

All testing will be conducted in accordance with the following, as far as site conditions allow:

- Environment Agency Technical Guidance Document M1
- Environment Agency Technical Guidance Document M2
- Manual Stack Emissions Monitoring Guidance for Personnel and Organisations
- EPR Environmental Permit Requirements

Ref: Associated OMA and MCERTS guidelines (Ref NRW/ EA websites)

Flaring and venting

This section includes flaring and the venting of LNG tank relief vents, SCV relief vents and fugitive venting.

There is no routine flaring during normal operations; however, emissions from the flare will occur in the event of LNG tank pressure rising excessively. Emissions from the flare during such events are not monitored directly but will be estimated based on gas flow, gas composition and the duration of the flaring event.

The mass of flared VOCs is calculated from interrogations of the flare gas flow meter. Whilst this may be achieved automatically in PIMS, these data are verified via manual interrogation of the flare meter tag by the Senior Environmental Engineer. Any episodes greater than 200 kg/hour are confirmed or otherwise by the Senior Environmental Engineer with the Process Supervisor who checks the daily operations logs.

There is no routine venting from the installation during normal operations; however, venting may occur in certain abnormal, emergency and maintenance situations. These emissions are not monitored directly,

but are estimated by engineering calculations, for example using plant information such as the release configuration, gas flow rate/ pressures and composition and the duration of the venting.

For each venting/ loss of containment episode, the Engineering Technician will be responsible for performing the necessary calculation of mass of methane vented/ LNG released from the installation to air and providing this data to the Senior Environmental Engineer to the agreed timescales (within 24 hours of Natural Resources Wales having been notified if necessary), together with the following supporting information

- Date of release.
- Mass of methane vented/ LNG released from the installation to air.
- Details of the release and the measures taken to reduce the release.

The Process Supervisor must also notify the Senior Environmental engineer of all flaring, venting and loss of containment events, in accordance with the:

- SHLNG Operational Guidance on Continuous Environmental Monitoring, (available on the LAN and Operator Control Panel in the Central Control Room CCR).
- Environmental Controls section of this manual
- Environmental Reporting and Notification section of this manual.
- SHEMS system 9-A, Incident Management, including recording via the SHE Assure system

The Senior Environmental Engineer will record all confirmed flaring and venting events in the Flaring and Venting Register, which is filed in the LAN.

The Senior Environmental Engineer collates this data on a periodic basis before being submitted to the NRW, in accordance with the section of this manual on Reporting and Notification.

Note: *As flaring, venting and loss of containment events may need to be notified to Natural Resources Wales immediately (EPR Environmental Permit (Condition 4.3)), details must be reported to the Senior Environmental Engineer in accordance with the sections in this manual on Continuous Environmental Monitoring, and Environmental Reporting and Notification.*

Diesel engines

For reliability and maintenance purposes, the essential emergency generators and the firewater diesel pumps are tested periodically.

The EPR Environmental Permit does not require direct monitoring of emissions from either of these diesel engines.

Emissions of CO_2 from the generator diesel engines are estimated, as required by the Greenhouse Gas Emissions Permit, in accordance with this Manual, sections of EU ETS Greenhouse Gas Monitoring and Reporting. Utility consumption data, including diesel, is tracked in the Utilities Monitoring Spreadsheet, as described in the section of this manual on Energy Management. Calculation of diesel energy use is performed in PIMS Environmental Report calculation spreadsheet, available on the LAN and manual calculations in accordance with the Monitoring Plan in the GHG permit.

Odour

The EPR Environmental Permit requirements are specified in the following permit conditions:

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.

3.16.6 Monitoring of Emissions to Water

EPR Environmental Permit requirements

On-line continuous emissions monitoring system (CEMS) analysers and flow meters are present on water emissions from the SCVs (release point W2) for determination of pH, flow and temperature. To meet environmental sampling and monitoring requirements of the EPR Environmental Permit (OMA/ UKAS), manual analysis of discontinuous monitoring is also required for pH, turbidity, nitrates, biological oxygen demand, total residual oxidant measured as total free chlorine, and List II metals are required where no online analyser is present, as described below.

Sampling locations have been agreed with the Environment Agency (Ref. SHLNG-ENV-C-073) prior to the establishment of Natural Resources Wales and are fully described in the PE.06C.01.001.00_Drainage Systems Operation, Maintenance.

These locations are appropriately labelled and illustrated in Appendix 2 - SHLNG Site Plan.

All analysis methods used for monitoring will be in accordance with the Environment Agency Technical Guidance Note M18, or as otherwise agreed with Natural Resources Wales.

SHLNG laboratory monitoring contractors are UKAS accredited which will help facilitate future OMA audit.

Table S3.2a (of the EPR Environmental Permit) is reproduced below and provides details of emissions to water monitoring, as required by the EPR Environmental Permit:

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

Emission point ref. & location[1]	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

Table S3.2a: Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point ref. & location[1]	Parameter	Source	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method (unless as otherwise agreed in writing with the NRW)
	List 2 metals (copper, zinc and iron only)		-	Maximum	Monthly	APHA 3120B
W2 on site plan in schedule 7	Flow	Process effluents	3500 m^3 per day	24 hour period aligned with gas day	Continuous	Flow meter
			164 m^3 per hour	Maximum		
	pH		6-9	Daily Maximum		BS ISO 10523
	Nitrates as N		50 mg/l	Spot	Daily	APHA 4500-NO3-B: 2019
			100 kg N/day			
			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 SHLNG CHP is commissioned or otherwise.*

Water Emissions Testing Standards

All analysis methods used for this monitoring will be in accordance with the Environment Agency Technical Guidance Note M18, or as otherwise agreed with the Natural Resources Wales. Table S3.2a lists the Water Emissions Testing Standards, as specified in accordance with gap analysis carried out using the OMA for water methods (Ref EAW CAR 03245, 16 March.2010). In the event of an incident that prevents access to the onsite laboratory, the laboratory provider will arrange for testing and analyses to be performed at alternate laboratory facilities, as detailed in the SHLNG Business Continuity Plan.

Site drainage via Release Point W1

Total organic carbon in the effluent at release point W1 is measured weekly via the Laboratory Monitoring Contractor

Flow rate from the W1 emission point (m^3/day and m3/hour) is estimated by the Senior Environmental Engineer, on the basis of a daily flow calculation using rainfall (mm/day). Rainfall data is received from Meteogroup on a monthly basis (1st of each month) via email and entered in to the calculation spreadsheet which is filed on the SHLNG LAN.

The Senior Environmental Engineer enters the resulting monthly flow (in m3) into PIMS Manual Input sheets, and the data is then used to calculate monthly loads, as required by the EPR Environmental Permit.

The Laboratory Monitoring Contractor is responsible for measuring and monitoring the discontinuous W1 emissions listed in Table S3.2a (of the EPR Environmental Permit).

SCV process effluent via Release Point W2

Effluent Flow Procedure, Preventive Maintenance and Audit Checks:

Effluent flow from W2 is measured continuously and the data transmitted, via the DCS, to the CCR where it is stored and processed by PIMS. This system maintains a flow data log and calculates flow rates as m^3/hour, m^3/day and peak values over 24 hours. Full (n+1) redundancy is provided for the effluent flow analysers, with provision of duty and standby continuous flow meters TAGS 49FT87001A and 49FT87001B, and the system complies with the requirements of MCERTS. The effluent flow system is periodically assessed by an MCERTS inspector (appointed in accordance with legal requirements and associated guidance) and, if compliant with MCERTS in terms of the physical installation and MCERTS management system elements, an MCERTS Site Conformity Certificate is issued by the CSA Group.

The MCERTS flow monitoring management system also needs to be assessed. Currently, CSA Group conduct management system audits (Ref. '*MCERTS Bulletin 17 Self-monitoring of effluent flow for PPC sites – What do operators need to do?*'. Performance standards and test procedures for continuous water monitoring equipment (Part 3 Performance standards and test procedures for water flow meters) are available from the Environment Agency web site. Relevant guidance includes:

- Management System Requirements Guidance, CSA Group
- Minimum Requirements for the Self-Monitoring of Flow, NRW/ Environment Agency

The maintenance section periodically undertake routine preventative maintenance (PM) checks and verification audits of the effluent flow, as described in the relevant routine(s) in SAP ref. 1 Maintenance Plan no. in SAP is 1337), under SHEMS 6-D,Asset Integrity. These PM routines include formal Preventative Maintenance Change Request (PMCR), which provides for appropriate control and authorisation of Management of Change.

The SAP Preventative Maintenance Plan – 1337, provides for the following activities:

i. Periodic, routine analyser verification functional checks & maintenance (if required)
ii. Periodic internal inspection of flow meter sensors and pipework immediately upstream and downstream (for debris etc.)

iii. Annual MCERTS Inspection & report/certificate, verification of flow meter system & calibration - by Emerson

iv. MCERTS inspection and report/certificate every 5 years (by an accredited inspector) to include Quality Management Systems audit.

It also sets out the actions to be taken in event of any discrepancies between flow meters A + B, and how to report findings.

The W2 automated monitoring systems was re-designed and re-placed in Q1 2014, via MOC OPM-19.8-104, in order to meet the requirements of MCERTS and conform to industry best practice. As part of the project the flow monitoring Automated Measuring Systems (AMS) were commissioned and verified by the Vendor in the presence of the Company. The system is subject to MCERTS Inspection Certification, as required by the EPR Environmental Permit and set out in SAP Preventative Maintenance Plan – 1337.

The Figure 4 below illustrates the data flow from W2 effluent flow meter readings to PIMS Environmental Reports:

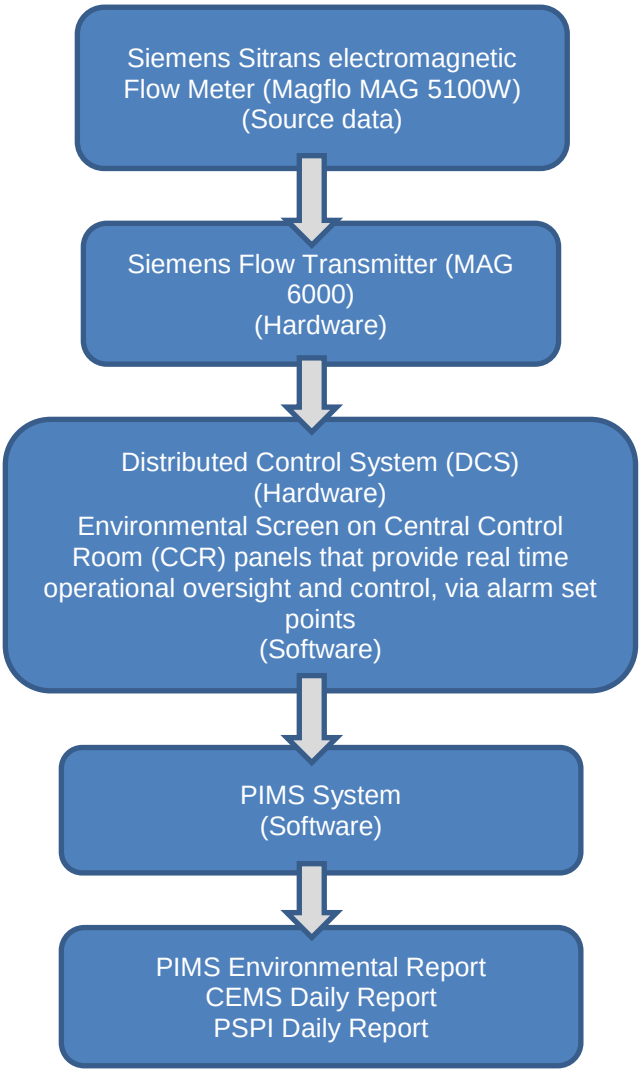


Figure 4. Figure illustrating the flow of effluent flow monitoring data

Temperature and pH are measured continuously and the data stored and processed by PIMS. Full (n+1) redundancy is provided, via TAGS 49AT87001A and 49AT87001B.

The other parameters in Table S3.2a (of the EPR Environmental Permit) are measured and monitored via the Laboratory Monitoring Contractor.

Temperature of the effluent is measured continuously, with analyser data transmitted via the plant DCS to a terminal in the CCR, where it is stored and processed by PIMS. PIMS maintains a temperature data log and calculates minimum value, peak value and mean value over 24 hours. The data is then processed in PIMS.

In the event of an incident that prevents access to the onsite laboratory, the laboratory provider will, at the Company's request, arrange for testing and analyses to be performed at alternate laboratory facilities, as detailed in the SHLNG Business Continuity Plan.

3.16.7 Monitoring of Process Variables

Monitoring process variables

In accordance with the EPR Environmental Permit (Condition 3.5.1), the process conditions listed in the Table 19 below are required to be monitored.

Table S3.3 (EPR Environmental Permit) - Process monitoring requirements				
Emission point reference or source or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
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	-	-

Table 19. Monitoring of Process Variables

The above data will be measured and transmitted continuously via the plant DCS to a terminal in the CCR, where it will be monitored and stored in Exaquantum database and available for interrogation via PIMS. The data will be reviewed in the SHLNG Terminal Daily Report of Key Performance Indicators.

3.16.8 Site Protection and Monitoring Programme (SPMP)

Monitoring the pollution prevention infrastructure

The Design Site Protection and Monitoring Programme (SPMP) Revision 2, dated September 2008, details the Infrastructure Monitoring Programme, which specifies the testing, inspection and maintenance programme for pollution prevention infrastructure at the site.

To comply with the requirements specified in the SPMP, surveillance monitoring of the pollution prevention infrastructure will take place regularly. These will be implemented in accordance with this Manual under the following:

- Environmental Controls - Regular Site Inspection Checklist
- SHEMS 6-A Operational Surveillance Routines
- Spill Control Procedure

The Business Services Manager is responsible for ensuring that General Services staff undertake routine periodic inspections (at least monthly) of key operational areas and recording the results in the SHLNG Monthly Environmental Checklist filed on the LAN.

General Services personnel submit these inspection reports to the Senior Environment Engineer for assessment and collation.

Site Condition Report (SCR)/ Baseline Report for Industrial Emissions Directive (IED)

The SPMP is maintained and groundwater & land quality of the permitted installation are maintained and assessed via periodic production of a Site Condition Report (SCR)/ Baseline Report for Industrial Emissions Directive (IED), in compliance with the requirements of EPR Environmental Permit, including condition 3.1.3.

Further details are presented in the Site Condition Report (SCR)/ Baseline Report for Industrial Emissions Directive (IED), submitted to NRW in compliance with EPR Environmental Permit, Permit Number EPR/ XP3538LD.

3.16.9 Operational Oversight and Control - Monitoring Operations and Environmental Monitoring Data Consistency

Continuous monitoring of plant and equipment

Key operationally important items of plant and equipment are monitored on a 24/7 basis. The DCS relays real-time information and data to the Process Operators and to the integrated historian (Exaquantum). The DCS provides monitoring and alarm information for all configured loops. PIMS supplements the DCS by continuously monitoring all KPIs, and presenting a historic overview to Operations as ‘traffic light’ guidance (green/amber/red). PIMS therefore enhances operational monitoring of the Terminal.

Plant operating parameters are monitored within DCS, as above, to ensure they are maintained within the defined Safe Operating Limits of equipment and systems in the Terminal. The operation of all equipment and systems in the Terminal is subject to SHLNG operating procedures, which have been subject to internal and external review and approval. Personnel operating the plant have completed training on the use of these procedures and plant-specific equipment training.

As described in the section of this manual on Environmental Monitoring, the Environmental Screen in the DCS provides for real time operational oversight and control and contains relevant alarms set as specified in the Environmental Controls section. This is further enhanced by automatic generation and circulation of routine reports to key personnel, including:

- Environmental CEMS Daily Report.
- PSPI (Process Safety Performance Indicators) Daily Report
- QAL 3 Report (NOx analysers Zero and Span calibration checks)
- The Environmental Screen within the DCS also links to help screens and the Operational Guidance on CEMS document (available on the LAN and Operator Control Panel in the Central Control Room CCR), which significantly improves oversight of our environmental compliance monitoring.

3.16.10 Maintenance of Environmentally-critical Plant and Equipment

Maintenance and calibration of environmental meters

To assure completeness and quality of CEMS monitoring data, the Maintenance Superintendent is responsible for ensuring appropriate maintenance, calibration, recording results of tests and associated data and information, emergency response and training for all statutory environmental meters (including CEMS meters), as identified in the Spreadsheet on Statutory meters PMs routines, (available on the LAN).

The Maintenance Superintendent will ensure that Process Supervisor is notified without delay should any statutory environmental meters or environmental monitoring data not be available for any reason, in accordance with the sections of this manual, including Environmental Controls, Environmental Reporting and Notification and other relevant sections. Maintenance and calibration activities will follow manufacturers' recommendations as informed and amended by Reliability Centred Maintenance (RCM) assessment(s) and be performed by suitably qualified personnel. test houses with suitable accreditation will be used, where required.

The Maintenance Superintendent will also ensure that adequate spares and critical spare parts are held as warehouse stock items for all identified statutory environmental meters, taking into consideration the plant n+1 operating philosophy for critical plant and equipment.

Maintenance strategies for the plant have been through exhaustive reviews and are implemented through the Computerised Maintenance Management System (CMMS).

Appropriate proactive and planned preventive maintenance (PM) is initiated via the strategies within SAP.

The Maintenance Superintendent is responsible for delivering the requirements specified in Operator Monitoring Assessment OMA 3 - Continuous monitoring, which covers the maintenance and calibration of monitoring equipment (Ref: Guidance on undertaking an Operator Monitoring Assessment, OMA, Industrial installations regulated under the Environmental Permitting Regulations Discharges to Water OMA (EA (GOV.uk) web site). Maintenance documentation will address and evidence the following areas, which will also be considered when arranging contracts.

OMA 3 - Continuous monitoring contains the following elements:

A Provision for monitoring and location of CWMEs (Continuous Water Monitoring Equipment) (Critical element)

B Certification of CWMs

C Measurement methods and standards (Critical element)

D Calibration methods (Critical element)

E Frequency of maintenance and calibration

F Reliability of equipment (data availability)

G Breakdown response

H Traceability

Documentary evidence is required for maintenance contracts let out to third parties. A competent person would be an individual with relevant training and/or experience in the appropriate equipment. Documentary evidence should be provided.

All statutory environmental analysers/meters should be returned to service as soon as possible. In practice, the restoration time is variable with target of 'as soon as is reasonably practicable', ideally within 24, 48, 72 or >72 hours. Further details are provided in the OMA Guidance and the SHLNG Spreadsheet on Statutory meters PMs routines (available on the LAN), which summarises the SHLNG statutory environmental meters PM routines.

3.16.10.1 Operator Monitoring Assessment Scheme (OMA)

General purpose

The purpose of the OMA scheme is as follows:

- To provide the Natural Resources Wales with a framework allowing objective and consistent assessment of operators (or subcontractors) air and water self-monitoring arrangements as required by their permit.
- To capture quality and reliability thereby identifying shortfalls and improvements.
- To assist the Natural Resources Wales in targeting and prioritising its internal monitoring programme of point source emissions.

The assessment approach is the same for air and water monitoring and covers the following sections:

- OMA 1 – Management of monitoring
- OMA 2 – Periodic monitoring and test laboratories
- OMA 3 – Continuous monitoring
- OMA 4 – Quality assurance

The Operations Manager is responsible for ensuring that SHLNG employs BAT and works to these exacting self-monitoring standards, with support from the Technical Services Manager and other Department Managers, as necessary.

As requested by NRW, the Terminal endeavours to align to BS EN 14181 where applicable.

SHLNG has implemented QAL2 (Quality Assurance of an AMS), QAL 3 Weekly Report (NOx analysers Zero and Span calibration checks) and Annual Surveillance Test (AST), for the NOx CEMS. In addition, the PC (computer in AH2) containing the Envirosoft software for monitoring the NOx has been mirrored in the CCR instrument room for improved visibility and ease of access, updated and set-up for initiating calibration span and zero checks of the CEMS as part of the QAL 3 process. These QAL 3 checks are routinely performed every 2 weeks and the results reviewed by the Senior Environmental Engineer/ relevant departments.

If any failures in these checks are identified, they are required to be investigated by ICSS engineer, IT Support and/or Maintenance Section following the checks required for the analyser.

3.16.10.2 Plant Information Management System (PIMS) Environmental Report

Generation of spreadsheet

The Plant Information Management System (PIMS) Environment Report is generated manually via a spreadsheet, which retrieves data from Exaquantum Data Historian, performs intermediate calculations and then formats that data into a report contained on a single worksheet. As the report is used to generate submissions to Natural Resources Wales, it is important that the source of each item on the report is clear and can be explained, if required. The forms on the front sheet of the Environmental Report are to provide the information prescribed by the EPR Environmental Permit (Condition 4.2).

The calculations and assumptions used in generating the PIMS Environment Report have been defined in the Environment Report Guide Document for SHLNG.

Continuous emissions monitoring data

Data from CEMS and associated meters are displayed live in the environmental screen on the DCS, which provides operational oversight. In addition, the data can be extracted to the Environmental Report MS Excel spreadsheet from the Exaquantum database. The CEMS data undergoes a sanity check prior to inclusion in the Environmental Report to guarantee the availability, reliability and quality of

environmental data being reported. This is carried out by means of an automated macro checking the quality of data and is monitored by the ICSS engineer. The PSPI (Process Safety Performance Indicators) Daily Report highlights the plant performance for the previous days compared with set performance indicators.

In addition, a CEMS Daily Report shows the Environmental CEMS screen and is automatically generated and circulated to key staff which improves operational oversight and control.

Discontinuous emissions monitoring data (DCM data)

DCM data is provided by the Laboratory Monitoring Contractor who operates laboratory facilities on site, which are accredited by UKAS.

In accordance with OMA requirements, the procedures by which water samples are taken for analysis at the Terminal are described in the Intertek Technical Procedure on Water Sampling (Ref SHT-LAB-SOP-07). This includes the site-specific sample protocol for water sampling performed at SHLNG and is aligned to the SHLNGprocedure PE.06C.01.001.00_Drainage Systems Operation, Maintenance.

The site-specific sample protocol (SSP) for discontinuous monitoring of emissions to air is provided by the Laboratory Monitoring Contractor to the Senior Environmental Engineer for review and approval before each quarterly sampling visit. These are in the format specified in the Environment Agency Manual Stack Emission Monitoring Performance Standard for Organisations (Annex D).

The Laboratory Monitoring Contractor provides Certificate of Analysis each day for W1 and W2 analysis as set out above.

DCM reports for emissions to air are filed by the Senior Environmental Engineer on the SHLNG LAN.

The Laboratory Monitoring Contractor will upload the DCM data; and the Senior Environmental Engineer uploads the other required environmental monitoring data; into the Exaquantum database via PIMS Manual Input sheets. This data automatically populates into the appropriate Environmental Permit report form when the PIMS Environmental Report MS Excel spreadsheet is run.

The Laboratory Monitoring Contractor also provides a site-specific protocol for water emissions monitoring. The site-specific protocol together with the CEMS, form SHLNG's Monitoring Programme in accordance with the EPR Environmental Permit (Condition 3.5).

3.16.10.3 Evaluation of Compliance and Preventative and Corrective Actions

Response following alarm activation

Process operators continuously monitor emissions monitoring and alarm information in real-time on the DCS. Alarms are set out in the environmental screen in the DCS and described in the section of this manual on Environmental Controls. Should an alarm be activated (indicating an ELV is approached or a statutory meter or environmental monitoring data is not available) the corresponding preventative, corrective actions and reporting and notifications requirements are specified in the

- SHLNG Operational Guidance on Continuous Environmental Monitoring, (available on the LAN and Operator Control Panel in the Central Control Room CCR).
- Environmental Controls section of this manual
- Environmental Reporting and Notification section of this manual

To facilitate operator surveillance of CEMS environmental monitoring data, a dedicated environmental screen is set up on the DCS. This screen facilitates investigations and, if necessary, initiates appropriate corrective actions by the CCR Operator upon activation of CEMS alarms, indicating high or low data, or whether any CEMS meters are unavailable because of malfunction or maintenance.

To ensure data completeness, quality assurance and evaluation of compliance with permit conditions, the Senior Environmental Engineer runs the PIMS Environmental Report periodically to check the following:

- That all required data is present and complete.
- That data is valid.
- Compliance evaluation.

The Senior Environmental Engineer also notifies the ICCS Engineer and, if necessary, the Process and/or Maintenance Superintendents of any missing or anomalous data, who will then initiate investigations and ensure that the following appropriate remedial action is performed, in the order listed:

1 Exaquantum, DCS engineering and IT related I&C checks.
2 I&C metering checks (arranged via Maintenance Supervisor), calling in vendor, if necessary.
3 PIMS Environmental Report checks.

Where necessary, and where possible, missing data is manually recovered to Exaquantum, which has buffering and full redundancy capacity in accordance with plant n+1 operating philosophy.

Should the NOx/ O2 continuous emissions monitoring system (CEMS) fail on SCV 1H or 2A, process operators will take the actions and manual readings in accordance with the SHLNG Operational Guidance on Continuous Environmental Monitoring (available on the LAN and Operator Control Panel in the Central Control Room CCR) and the section of this manual on Environmental Controls. The SCVs provided with CEMS for NOx/ O2 (SCVs 1H & 2A) may not legally be run without the CEMS being online and CEMS data being available unless written approval is received from regulator NRW.

Discontinuous emissions monitoring data

The Laboratory Monitoring Contractor visually assesses the quality of the emissions to water at the time of sampling. Any visual anomalies or concerns are reported without delay to the Process Supervisor in accordance with the section of this manual on Environmental Reporting and Notification. Upon completion of the test analyses, the Laboratory Monitoring Contractor assesses the results against any ELVs or other designated alarm limits set out in the section of this manual on Environmental Controls (see alarm set-point set in the DCS for CEMS and as specified in Appendix 3 of this manual). All anomalies are reported (verbally and via flagged e-mail, copied to the Senior Environmental Engineer) to the Process Supervisor without delay, as described in the section of this manual on Environmental Reporting and Notification.

Should an alarm be activated (indicating ELV approached/action trigger is exceeded) the corresponding preventative, corrective actions and reporting and notifications requirements are described in the sections in this manual on Environmental Controls and Environmental Reporting and Notification.

All incidents are internally notified, investigated and reported in accordance with the following SHLNG guidance and procedures, as relevant:

- SHLNG Operational Guidance on Continuous Environmental Monitoring, (available on the LAN and Operator Control Panel in the Central Control Room CCR).
- Incident Management Manual (SM.09A.01.000.00)
- Environmental Reporting and Notification section of this manual

Emissions to air - CEMS Invalidation Log

The Natural Resources Wales (NRW) suggested adoption of a CEMS Invalidation Log approach (refer to Appendix 7) to help document the problems occasionally experienced on the NOx CEMS. This approach has been taken with the large combustion plant sector. This log chronicles the amount of time a CEMS has been out of use, the reasons for it being out of use, and the cumulative time the CEMS has been invalid.

The invalidated CEMS log also has an associated condition with it. See below for the standard approach taken on large combustion plants in the UK. Any day in which more than three hourly average values are invalid due to malfunction and/or maintenance of the continuous monitoring systems fitted to the large combustion plant release points (A1, A2, etc.) will be invalidated. If more than 10 days during a year are invalidated for such situations, the operator must review the causes of any malfunctions and/or maintenance and take measures to improve the reliability of the CEMS. The operator must send details of

the measures to be taken and the timetable for the implementation of these measures to the Natural Resources Wales within 28 days of finding more than 10 invalidated days in any year of operation.

Invalid hours and invalid days are calculated automatically in the DCS and displayed on the environmental screen in the CCR. Upon receipt of notification by the Process Supervisor, the Senior Environmental Engineer will verify the invalid hours/ days.. The Senior Environmental Engineer will report to the Process Superintendent and Technical Services Manager within 24 hours of finding more than 10 invalidated days in any year of operation.

For emissions to air CEMS, the Natural Resources Wales advised that it is unreasonable to apply daily ELVs for days with short run times of less than 3 hours. Using the Large Combustion Plant (LCP) for data interpretation the Natural Resources Wales has agreed to such days being ruled out as invalid days. The LCPD uses minimum data loss of three hours in a day (ref. CAR 3476).

3.16.11 Management System Elements of SHEMS that fulfil the Requirements of MCERTS for the Self-Monitoring of Flow

The section below presents the Management System elements of SHEMS that fulfil the requirements of MCERTS for the self-monitoring of flow, as set out in the Management System Requirements Guidance, (ref CSA Group) and the Minimum Requirements for the Self-Monitoring of Flow, referred to as '*the Minimum Requirements* ' (Ref. The Natural Resources Wales/ Environment Agency).

It addresses the requirements of section 4 – Management Systems of "Minimum Requirements for the Self Monitoring of Flow,", to ensure that flow data is consistently accurate and correctly captured and communicated. The management system elements ensure continued flow measurement accuracy between the five-yearly MCERTS inspections of site arrangements.

The section includes statements, information and/or documented procedures, as appropriate, covering the following system elements (section numbers in parenthesis refer to the relevant section in the '*the Minimum Requirements* ':

The clauses in red text* (listed below) are considered to be the "key" areas

- quality/environmental policy – **(Sect 4.4)**
- management responsibilities – **(Sect 4.5)***
- documentation – **(Sect 4.6)**
- operating procedures – **(Sect 4.7)**
- document control – **(Sect 4.8)**
- equipment inventory – **(Sect 4.9)***
- maintenance – **(Sect 4.10)**
- commissioning – **(Sect 4.11)**
- site changes – **(Sect 4.12)***
- verification – **(Sect 4.13)***
- data treatment – **(Sect 4.14)***
- corrective actions – **(Sect 4.15)**
- internal audits – **(Sect 4.16)**

i. Quality/Environmental Policy (Sect. 4.4 of '*the Minimum Requirements*)

a. The Company's Environmental/ Quality/ Major Accident Prevention Policies are considered in this manual section 3.1 on Environmental/ Quality/ Major Accident Prevention Policies.

The Company's Safety, Security, Health and Environmental Policy (PY-000-00-01) is in accordance with condition 1.1 of EPR Environmental Permit. It is displayed as required and communicated to all relevant personnel when joining SHLNG.

The policy is also available to the public and other interested parties via the SHLNG website. at: https://www.southhooklng.com/operations/health-and-safety/

The Company's Safety, Security, Health and Environmental Policy (PY-000-00-01) includes a commitment to comply with environmental regulations and/or legislation, in conformance with '*the Minimum Requirements* '

b. In addition:

- SHLNG's Quality Policy is stated in document PY-000-00-03.
- SHLNG's Major Accident Prevention Policy is stated in document PY.000.00.02

The policies above are available to employees via the LAN, under I:\DL\Policies.

ii. Management Responsibilities** (key area*) (Sect. 4.5 of '*the Minimum Requirements* ')

a. **The Senior Environmental Engineer (SEE)** is the Company's 'MCERTS Responsible Person', responsible for the implementation and maintenance of the MCERTS Management System elements and effective operation of the system (including clauses 4.4 to 4.16 of '*the Minimum Requirements*')

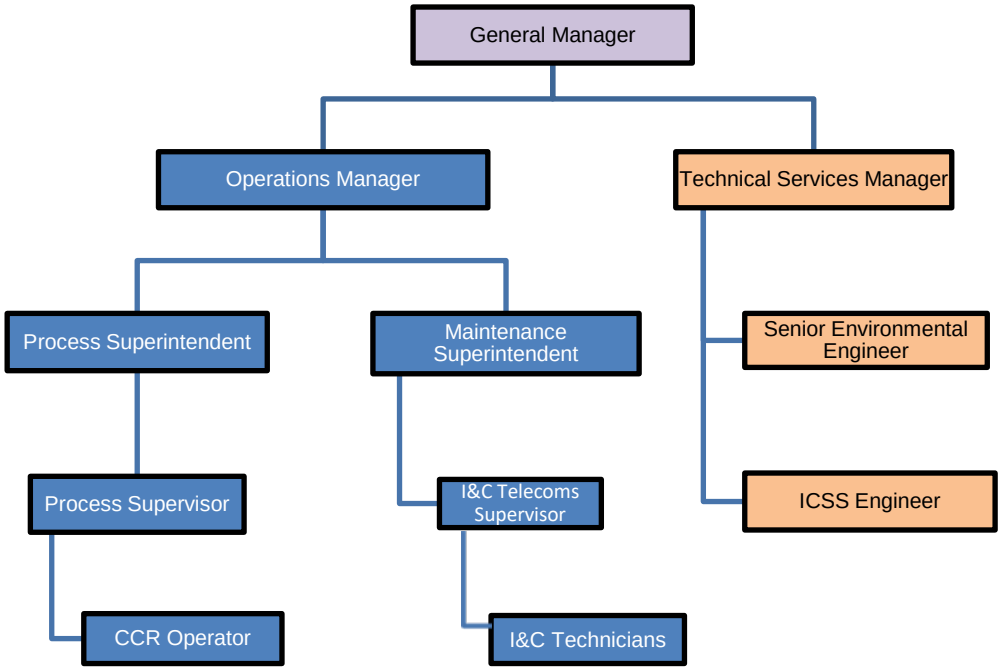
Ref.:

i. This Manual (SHEMS 6C), Section 2, Responsibilities of the Senior Environmental Engineer (System Administrator), and

ii. Roles and Responsibilities Matrix, System Document (SHEMS 6C).

b. The Companies organisation chart is available from and maintained by the Human Resources section:

The key positions relevant to the Management System Elements of SHEMS that fulfil the Requirements of MCERTS for the Self-Monitoring of Flow are highlighted on the organisation chart below. This shows the person(s) with principle responsibility for the management system and their relationship to senior management and include the following:



Roles and responsibilities for the key positions relevant to MCERTS are summarised below:

Ref.:

i. This Manual (SHEMS 6C), Section 2, Responsibilities, and

ii. Roles and Responsibilities Matrix, System Document (SHEMS 6C).

General Manger

Is accountable for overall environmental performance and compliance of the permitted installation with legal and other requirements

Technical Services Manger

Is the 6-C System Owner, with overall responsibility and authority to ensure the implementation and maintenance of the System 6-C

Senior Environmental Engineer (SEE)

Is the 6-C System Administrator and Company's 'MCERTS Responsible Person'. Is responsible for compliance with the SHLNG Terminal environmental permits and all applicable legal and other environmental requirements.

ICSS Engineer (Integrated Control & Safety System Engineer)

Is responsible for Operation and maintenance of the Plant information Management System (PIMS), including Exaquantum database, ICSS DCS engineering and related systems

Operations Manager

Is responsible for the overall operation of the Terminal. Ensuring overall compliance of Terminal operations, including operational oversight and control and compliance with SHLNG's environmental permits to operate.

Process Superintendent

Is responsible for ensuring that any operational matters relating to non-compliance with the applicable environmental permits, such as effluent flow emissions monitoring, are reported to the Technical Services Department in a timely manner to timescales agreed, and actions are implemented in the SHLNG Operational Guidance on Continuous Environmental Monitoring, (available on the LAN and Operator Control Panel in the Central Control Room (CCR)), and the sections on Environmental Controls; Monitoring and Reporting & Notification.

Process Supervisors

Are responsible for performing the actions assigned in the SHLNG Operational Guidance on Continuous Environmental Monitoring (available on the LAN and Operator Control Panel in the Central Control Room CCR), and the sections on Environmental Controls; Monitoring and Reporting & Notification.

CCR operators

Are responsible for oversight and management control of process variables and emissions. Performing the actions assigned in the SHLNG Operational Guidance on Continuous Environmental Monitoring, (available on the LAN and Operator Control Panel in the Central Control Room CCR), and the sections on Environmental Controls; Monitoring and Reporting & Notification.

Maintenance Superintendent

Is responsible for continual development and implementation of the planned preventative maintenance (PM) strategy, and ensuring the PM programme, breakdown, response and calibration schedules are fit for purpose and meet all legal requirements. This includes the 'Statutory Environmental Meters', including the MCERTS continuous emission monitoring systems and MCERTS effluent flow meters.

Ref.: Environmental Control (Additional Responsibilities)

I&C Telecoms Supervisor

Is responsible for ensuring the undertaking of the programme of planned preventative maintenance (PM), breakdown response and calibration schedules.

Maintenance Personnel/ I&C Technicians

Are responsible for undertaking maintenance tasks in accordance with SHEMS, and/ or as otherwise directed. Reporting matters relating to environmental compliance to Maintenance Superintendent, as required

Ref.: Environmental Control (Additional Responsibilities)

In accordance with the '*the Minimum Requirements*', job descriptions and roles defined within SHEMS are fit for purpose and not over complex. For example, those involved in the cleaning of flow monitoring equipment do not need to have a detailed understanding of MCERTS requirements, they just need to know the extent of their responsibilities and that it is important for flow monitoring accuracy.

Training records, maintained by the Human Resources (HR) section under the Company's Controls Management System (CMS) on 'Human Resources Management', demonstrate that appropriate MCERTS training has been provided.

Additionally the Senior Environmental Engineer (SEE) keeps up-to date and abreast of developments via regular liaison with regulator (NRW), and literature study including via membership of the Source Testing Association (STA), The ENDS Report and Cedrec Directory of Legislation. Training for operatives is in accordance with technical requirements of the Roles and Responsibilities, as set out in job descriptions, with appropriate MCERTS awareness provided internally via direct liaison and

communication and where appropriate tool box talks, for example the Environmental Screen Toolbox Talk that includes the 'Flowchart of Operational Guidance on Continuous Environmental Monitoring' (the 'SHLNG Operational Guidance on Continuous Environmental Monitoring').

iii. Documentation (Sect. 4.6 of '*the Minimum Requirements*')

An overview of the system elements for effluent flow is set out in this manual (SHEMS System 6C), which includes the provision of the policy statement, organisation structure with respect to MCERTS, and principle responsibilities.

Ref.:

i. This Manual (SHEMS System 6C), Environmental Monitoring, section on 'Management System Elements of SHEMS that fulfil the Requirements of MCERTS for the Self-Monitoring of Flow'.

ii. The Computerised Maintenance Management System (CMMS) – SAP

iii. SHEMS System 4-A, Documentation & Information Management, including TDMS (Technical Document Management System)

iv. Project documentation stored on the LAN, including Project Number U0027 for upgrade of the W2 CEMS Effluent Flowmeter system (MOC ref. no. OPM-19.8-104).

iv. Operating procedures (Sect. 4.7 of '*the Minimum Requirements*')

a. Operating Procedures include the following

Ref.:

i. SHEMS System 6-A, Ops & Maintenance Procedures (general)

ii. This Manual (SHEMS System 6C), Environmental Monitoring, sections on

- Monitoring of Emissions to Water
- SCV process effluent via Release Point W2, 'Effluent Flow Procedure, Preventive Maintenance and Audit Checks'
- Operational Oversight and Control - Monitoring Operations and Environmental Monitoring Data Consistency
- Maintenance of Environmentally-critical Plant and Equipment - Maintenance and calibration of environmental meters

iii. This Manual (SHEMS System 6C), Environmental Controls, sections on:

- Control of Emissions to Water, including
- Site Drainage Discharge Point (W1), Ref. PE.06C.01.001.00_Drainage Systems Operation, Maintenance
- W2 Process (SCV) effluent, Ref. PE.06C.01.001.00_Drainage Systems Operation, Maintenance

iv. The Computerised Maintenance Management System (CMMS) – SAP (Maintenance plans (e.g. Plan 1337), routines and records)

v. Vendor operating manuals, project documentation stored on the LAN, including Project Number U0027 for upgrade of the W2 CEMS Effluent Flowmeter (MOC ref. no. OPM-19.8-104).

b. Management Procedures include the following

i. This Manual (SHEMS System 6-C), Environmental Controls, sections on

- Operational oversight and control
- Inspection and Audit

ii. This Manual (SHEMS System 6-C), Environmental Monitoring, sections on

- Monitoring of Emissions to Water
- SCV process effluent via Release Point W2, 'Effluent Flow Procedure, Preventive Maintenance and Audit Checks', Ref. MCERTS inspections & certification

iii. The Computerised Maintenance Management System (CMMS) – SAP (Maintenance plans (e.g. Plan 1337), routines and records)

The "Competent Person" responsible for the issue of operating procedures is defined by SHEMS. Responsibilities for the requirements of MCERTS for the self-monitoring of flow are clearly defined and assigned to an appropriate person or persons, see:

i. This Manual (SHEMS System 6C), Environmental Monitoring, section on 'Management System Elements of SHEMS that fulfil the Requirements of MCERTS for the Self-Monitoring of Flow', see section on **Management Responsibilities** (key area*) (Sect. 4.5)**

ii. This Manual (SHEMS 6C), Section 2, Responsibilities, and

iii. This Manual (SHEMS System 6C), Environmental Controls (Additional Responsibilities) and

iv. This Manual (SHEMS System 6C), Environmental Monitoring (Additional Responsibilities) and

v. Roles and Responsibilities Matrix, System Document (SHEMS 6C).

v. Document control (Sect. 4.8 of '*the Minimum Requirements* ')

Operating procedures (and subsequent revisions) are approved by appropriate persons, as defined in SHEMS (System 4-A, on Documentation & Information Management), with records to confirm this has taken place.

Procedure updates are distributed appropriately and out of date versions withdrawn to prevent inadvertent use. These constitute the necessary controls. These actions are in defined in SHEMS System 4-A, Documentation & Information Management, which includes the System Manual SM.04A.01.000.00 SHEMS Documentation Management.

Preventative Maintenance Change Request (PMCR), for example PMCR No. 0054 in respect of effluent flow) to introduce or change existing Maintenance Routines in (SAP), are approved by appropriate persons, as defined in SHEMS System 6-D, Asset Integrity.

Review, approval and implementation of all technical and engineering changes throughout SHLNG, are in accordance with the SHEMS System 7-A, on Management of Change (MOC), Ref. SM.07A.01.000.00 Management of Change (MOC).pdf

vi. Equipment inventory** (key area*) Sect. 4.9 of '*the Minimum Requirements* ')

Major items of equipment include the electromagnetic flowmeter and associated recording equipment. The equipment is included in existing SHEMS systems, including:

i. This Manual (SHEMS System 6C), Environmental Controls, sections on:
   - Control of Emissions to Water, including
   - W2 Process (SCV) effluent

ii. This Manual (SHEMS System 6C), Environmental Monitoring, sections on
   - Monitoring of Emissions to Water
   - SCV process effluent via Release Point W2, 'Effluent Flow Procedure, Preventive Maintenance and Audit Checks', Ref. MCERTS inspections & certification

iii. List of 'Statutory Environmental Meters', see
   a. This Manual (SHEMS System 6C), Environmental Controls, section on Additional Responsibilities, Maintenance Superintendent_
   b. This Manual (SHEMS System 6C), Environmental Controls, section on 'Identification of potentially harmful plant and equipment'
   c. This Manual (SHEMS System 6C), Environmental Controls, section on 'Maintenance and calibration of environmental meters'

   The flow measurement equipment listed in the MCERTS Site Inspection report appear on the list, together with the unique identifying codes (e.g. serial numbers).

iv. Vendor operating manuals, project documentation stored on the LAN, including Project Number U0027 for upgrade of the W2 CEMS Effluent Flowmeter (MOC ref. no. OPM-19.8-104), including:
   a. Schematic - Effluent Flow meter scheme
   b. Proposed Instruments for W2 Engineering solution

The equipment is included in existing SHEMS maintenance systems, including:

i. The Computerised Maintenance Management System (CMMS) – SAP (Maintenance plans (e.g. Plan 1337), routines and records)

Key elements of the data flow from W2 effluent flow meter readings to PIMS Environmental Reports are also included, see:

i. Figure 4 illustrating the flow of effluent flow monitoring data, in this Manual (SHEMS System 6-C), Environmental Monitoring, section on Monitoring of Emissions to Water; SCV process effluent via Release Point W2; 'Effluent Flow Procedure, Preventive Maintenance and Audit Checks'.

vii. Maintenance** (key area*) (Sect. 4.10 of '*the Minimum Requirements* ')

An appropriate maintenance schedule is established and maintained, including:

i. This Manual (SHEMS System 6C), Environmental Controls, sections on:
   - Control of Emissions to Water, including
   - Site Drainage Discharge Point (W1), Ref. PE.06C.01.001.00_Drainage Systems Operation, Maintenance

- W2 Process (SCV) effluent, Ref. PE.06C.01.001.00_Drainage Systems Operation, Maintenance

ii. The Computerised Maintenance Management System (CMMS) – SAP (Maintenance plans (e.g. Plan 1337), routines and records)

iii. List of 'Statutory Environmental Meters', see

a. This Manual (SHEMS System 6-C), Environmental Controls, section on 'Identification of potentially harmful plant and equipment'

b. This Manual (SHEMS System 6-C), Environmental Controls, section on 'Maintenance and calibration of environmental meters'

iv. SHEMS System 6-A, Ops & Maintenance Procedures (general)

v. This Manual (SHEMS System 6-C), Environmental Monitoring, sections on

- Monitoring of Emissions to Water
- SCV process effluent via Release Point W2, 'Effluent Flow Procedure, Preventive Maintenance and Audit Checks'
- Operational Oversight and Control - Monitoring Operations and Environmental Monitoring Data Consistency
- Maintenance of Environmentally-critical Plant and Equipment - Maintenance and calibration of environmental meters

Typical maintenance activities include instrument checks and a visual examination. Maintenance frequencies are based on operational experience, Reliability Centred Maintenance (RCM) assessment(s), and supported by maintenance/inspection records.

Maintenance activities are separated into tasks which are performed "3 monthly", "annually", "5 yearly" (recertification) or "Continually/ daily 'as required" see:

Ref.:

i. this Manual (SHEMS System 6-C), Environmental Monitoring, sections on SCV process effluent via Release Point W2, 'Effluent Flow Procedure, Preventive Maintenance and Audit Checks', including 3 monthly, annual and 5 yearly checks of the effluent flow monitoring system

ii. "3 monthly", "annually", "5 yearly" (recertification): see the Computerised Maintenance Management System (CMMS) – SAP (Maintenance plans (e.g. Plan 1337), routines and records)

iii. Continually/ daily 'as required': see this Manual (SHEMS System 6-C), Environmental Monitoring, sections on Operational Oversight and Control - Monitoring Operations and Environmental Monitoring Data Consistency – breakdown response

iv. Continually/ daily 'as required': see this Manual (SHEMS System 6-C), Environmental Monitoring, sections on Operator Monitoring Assessment Scheme (OMA).

In order to detect any potential deterioration in performance, and other problems, that could include production variations that may cause deviations in accuracy regular functional checks are carried out, including:

i. Continually/ daily 'as required': see this Manual (SHEMS System 6-C), Environmental Monitoring, sections on Plant Information Management System (PIMS) Environmental Report

ii. Continually/ daily 'as required': see this Manual (SHEMS System 6-C), Environmental Monitoring, sections on Operational Oversight and Control - Monitoring Operations and Environmental Monitoring Data Consistency – breakdown response

iii. The Computerised Maintenance Management System (CMMS) – SAP (Maintenance plans (e.g. Plan 1337), routines and records)

The Maintenance Section personnel record when maintenance activities were performed and who performed them. As the equipment has specific periodic maintenance requirements, these are included in the maintenance schedule accordingly. There are no specific seasonal requirements for maintenance.

viii. Commissioning (Sect. 4.11 of '*the Minimum Requirements* ')

SHEMS System on 6C Environmental Management, SHEMS System 7-A on Management of Change, (MOC), together with the EPR Environmental Permit, ensure that new installations and any modifications to the flow measurement structures result in an MCERTS inspection, as required.

The permitted flow monitoring installation was commissioned in accordance with the OEM recommendations/ manuals, via Project Number U0027 for upgrade of the W2 CEMS Effluent Flowmeter system (MOC ref. no. OPM-19.8-104). The system (design, operation and maintenance) has been verified and approved via subsequent annual and 5 yearly MCERTS site inspections and MCERTS Certification by Regulator approved third party auditors, in accordance with '*the Minimum Requirements'.*

ix. Site changes** (key area) (Sect. 4.12 of 'the *Minimum Requirements* ')

Any site changes that could influence measurement uncertainty will be captured, recorded, assessed for their significance by the MCERTS Responsible Person, and suitable action taken to ensure measurement uncertainty is maintained. The Company has documented procedures to demonstrate that the above process has been followed and also to confirm completion of any action(s) necessary.

The key factor is whether any site change affects the validity of the MCERTS Inspection Certificate e.g. previously stated measurement performance is no longer being achieved, or the flow monitoring arrangements are no longer as described in the inspection report. One example of a "significant change" would be a change to the process which significantly reduces the daily volume measured. This could potentially result in the 8% uncertainty target being exceeded. Records are maintained to demonstrate conformance with these requirements.

Ref.:

i. SHEMS System 7-A on Management of Change, (MOC), e.g MOC 2013 - W2 CEMS Effluent Flowmeter OPM-19.8-104

ii. this Manual (SHEMS System 6-C), Environmental Controls, Additional responsibilities (Technical Services Manager and Senior Environmental Engineer)

iii. this Manual (SHEMS System 6-C), Environmental Controls, Control of Emissions to Water, W2 Process (SCV) effluent

iv. this Manual (SHEMS System 6-C), Environmental Controls, Incident investigations and reporting

v. EPR Environmental Permit

vi. Preventative Maintenance Change Request (PMCR), for example PMCR Nos. 0102 & 0054 in respect of effluent flow, to introduce or change existing

Maintenance routines in (SAP), are approved by appropriate persons, as defined in SHEMS System 6-D, Asset Integrity.

x. Verification** (key area) Sect. 4.13 of '*the Minimum Requirements* ')

Ref.:

i. this Manual (SHEMS System 6-C), Environmental Monitoring, sections on

- Operational Oversight and Control - Monitoring Operations and Environmental Monitoring Data Consistency
- Plant Information Management System (PIMS) Environmental Report – periodic checks (includes summary statistics) by Senior Environmental Engineer (SEE)
- Evaluation of Compliance and Preventative and Corrective Actions
- SCV process effluent via Release Point W2, 'Effluent Flow Procedure, Preventive Maintenance and Audit Checks', including 3 monthly, annual and 5 yearly checks of the effluent flow monitoring system

ii. The Computerised Maintenance Management System (CMMS) – SAP (Maintenance plans (e.g. Plan 1337), routines and records)

iii. this Manual (SHEMS System 6C), Environmental Controls, Control of Emissions to Water, W2 Process (SCV) effluent, including continuous verification of continuous (flow) monitoring (in the CCR), and the alarm set-point set in the DCS for CEMS and as specified in Appendix 3 of this manual.

iv. This Manual (SHEMS System 6C), Environmental Controls, sections on

1. Operational oversight and control
2. Inspection and Audit

xi. Data treatment** (key area) (Sect. 4.14 of '*the Minimum Requirements* ')

The SHEMS System 6-C describes how flow measurement data is collected and processed and thus demonstrates how the stated measurement uncertainty is maintained. As flow measurement data is transmitted continuously, the maximum acceptable data treatment error has been recorded (in the relevant MCERTS Site Inspection reports.

Ref.:

i. this Manual (SHEMS System 6-C), Environmental Monitoring, sections on

- Operational Oversight and Control - Monitoring Operations and Environmental Monitoring Data Consistency
- Plant Information Management System (PIMS) Environmental Report –periodic checks (includes summary statistics) by Senior Environmental Engineer (SEE)
- Evaluation of Compliance and Preventative and Corrective Actions
- SCV process effluent via Release Point W2, 'Effluent Flow Procedure, Preventive Maintenance and Audit Checks', including 3 monthly, annual and 5 yearly checks of the effluent flow monitoring system

ii. The Computerised Maintenance Management System (CMMS) – SAP (Maintenance plans (e.g. Plan 1337), routines and records)

iii. this Manual (SHEMS System 6C), Environmental Controls, Control of Emissions to Water, W2 Process (SCV) effluent, including continuous verification of continuous (flow) monitoring

(in the CCR), and the alarm set-point set in the DCS for CEMS and as specified in Appendix 3 of this manual.

Key elements of the data flow from W2 effluent flow meter readings to PIMS Environmental Reports are also included, see:

i. Figure 4 illustrating the flow of effluent flow monitoring data, in this Manual (SHEMS System 6C), Environmental Monitoring, section on Monitoring of Emissions to Water; SCV process effluent via Release Point W2; 'Effluent Flow Procedure, Preventive Maintenance and Audit Checks'.

The items listed i to iii (under element xi. on Data treatment) above, demonstrate that the activities listed in 4.14.2. of '*the Minimum Requirements*' are undertaken, namely that:

- the appropriate checks are specified in the Operator's operating procedures
- the procedures are being implemented in a timely and appropriate manner
- the results are being recorded and analysed
- and that these are included in the overall assessment of the total uncertainty.

Some MCERTS Inspectors may use a local display to set-up and configure a flowmeter. As flow data is transmitted to and stored on a data archive (and subsequently sent to the NRW), the MCERTS Inspector and I&C Instrument Technicians routinely verify that the flow data appearing on the data archive matches the flow data indicated on the local display. Such checks are performed during routine verification (Sect 4.13 of 'the Minimum Requirements'), for example The Computerised Maintenance Management System (CMMS) – SAP (Maintenance plans (e.g. Plan 1337), routines and records).

xii. Corrective actions (Sect 4.15 of '*the Minimum Requirements* ')

Any Incidents that indicate a failure of the management system or which could threaten the integrity of flow measurement data would be captured, investigated, and appropriate action put in place, via the SHEMS System 9-A on Incident Management. Specific consideration is given to effluent flow monitoring in:

Ref.:

i. this Manual (SHEMS System 6-C), Environmental Monitoring, sections on

- Operational Oversight and Control - Monitoring Operations and Environmental Monitoring Data Consistency
- Plant Information Management System (PIMS) Environmental Report –periodic checks (includes summary statistics) by Senior Environmental Engineer (SEE)
- Evaluation of Compliance and Preventative and Corrective Actions
- SCV process effluent via Release Point W2, 'Effluent Flow Procedure, Preventive Maintenance and Audit Checks', including 3 monthly, annual and 5 yearly checks of the effluent flow monitoring system

ii. The Computerised Maintenance Management System (CMMS) – SAP (Maintenance plans (e.g. Plan 1337), routines and records)

iii. this Manual (SHEMS System 6-C), Environmental Controls, Control of Emissions to Water, W2 Process (SCV) effluent, including continuous verification of continuous (flow) monitoring (in the CCR), and the alarm set-point set in the DCS for CEMS and as specified in Appendix 3 of this manual.

iv. this Manual (SHEMS System 6-C), Environmental Controls, Incident investigations and reporting

v. this Manual (SHEMS System 6-C), sections on Environmental Reporting and Notification, including section on Notification Requirements and Environmental incident categories.

Incidents are assessed by personnel with appropriate experience. Incidents that involve effluent flow measurement are communicated to the "the MCERTS Responsible Person". Completion of actions is tracked via the electronic Safety, Health and Environmental (SHE) Reporting System to ensure their completion and effectiveness.

xiii. Internal audits (Sect. 4.16 of '*the Minimum Requirements* ')

The MCERTS audit programme, incorporated in the annual Environmental Audits Plan stored on the LAN, demonstrates that audits are carried out annually, usually in Q3 or Q4, and that they cover all areas of the MCERTS standard in a twelve month period.

Checks by suitably qualified individuals ensure that the MCERTS management system continues to be operated effectively and remains compliant with the latest version of the MCERTS standard.

Ref.:

i. this Manual (SHEMS System 6-C), Environmental Monitoring, sections on

- Operational Oversight and Control - Monitoring Operations and Environmental Monitoring Data Consistency
- Plant Information Management System (PIMS) Environmental Report –periodic checks (includes summary statistics) by Senior Environmental Engineer (SEE)
- Evaluation of Compliance and Preventative and Corrective Actions
- SCV process effluent via Release Point W2, 'Effluent Flow Procedure, Preventive Maintenance and Audit Checks', including 3 monthly, annual and 5 yearly checks of the effluent flow monitoring system

ii. The Computerised Maintenance Management System (CMMS) – SAP (Maintenance plans (e.g. Plan 1337), routines and records)

iii. This Manual (SHEMS System 6-C), Environmental Controls, sections on

1. Operational oversight and control
2. Inspection and Audit

3.16.12 Communication

Internal reporting and communication associated with this procedure is described in the table 20 below

Report/Communication	By	To	Schedule/Frequency
Results of monitoring for emissions to air and water	Laboratory Contractor	Senior Environmental Engineer	Daily/Monthly/quarterly/Annually
Anomalous Results of monitoring for emissions to air and water	Senior Environmental Engineer	Technical Services Manager	Daily Monthly/quarterly/Annually
Measurement and Verification indicators	Senior Environmental Engineer	Technical Services Manager	Annually
SPMP monitoring	General Services Manager or delegate Process Supervisor	Senior Environmental Engineer	Monthly As required if problems detected

Table 20. Internal Reporting and Communication

External environmental reporting to regulatory and other authorities is fully addressed in the section of this manual on Environmental Reporting and Notification.

3.17 EU ETS Greenhouse Gas Monitoring and Reporting

Purpose

The purpose of this section is to describe how SHLNG will ensure that the monitoring, reporting and verification of all CO_2 emissions produced at the Terminal complies with conditions set out within the EU ETS Greenhouse Gas (GHG) Permit. This is a requirement of the Greenhouse Gas Emissions Trading Scheme Regulations 2012 and related EU Directives. Reporting will be undertaken as part of the European Union Emissions Trading System (EU ETS).

This procedure provides details of the following:

- Emission points identified in the EU ETS GHG Permit.
- Monitoring methods, including:
  - The monitoring tier to be applied to each monitoring variable.
  - The specification and location of instruments and equipment used for measuring.
  - Sampling and analysis procedures.
- Maintenance and calibration of instruments and equipment used for measuring;
- Data management and emission calculation processes.
- Reporting requirements.
- Verification requirements.
- Retention and provision of information.
- SHLNG's approach to measurement and calculation of uncertainty.
- Quality assurance and control.
- SHLNG's response to equipment failure and mismeasurement.
- SHLNG's management of change process

Definitions

The following definitions, shown in Table 21 below, apply throughout this section:

Term	Definition
De-minimis source streams	A group of minor source streams, as defined in the EU Monitoring and Reporting Regulation 2012 as: "where the source streams selected by the operator jointly correspond to less than 1,000 tonnes of fossil CO_2 per year or to less than 2%, up to a total maximum contribution of 20,000 tonnes of fossil CO_2 per year, whichever is the highest in terms of absolute value"
Monitoring and Reporting Regulation 2012 (MRR)	21/06/2012 - Commission Regulation 601/2012 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council (known as the Monitoring and Reporting Regulation 2012 (MRR)). It can be downloaded from: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32012R0601
Free Allocation Rules (hereinafter "the FAR")	The Free Allocation Rules (hereinafter "the FAR") are contained in the Commission Delegated Regulation (EU) 2019/331 of 19 December 2018 determining transitional Union-wide rules for harmonised free allocation of emission allowances pursuant to Article 10a of Directive 2003/87/EC of the European Parliament and of the Council. They can be downloaded from: https://eur-lex.europa.eu/eli/reg_del/2019/331/oj An essential element of the FAR is a data collection to be carried out by Member States for which operators have to prepare a monitoring methodology plan (MMP) pursuant to Article 8 of the FAR. For example the 2019 NIMs (National Implementation Measures) cross-EU data collection exercise 2019 for Phase 4 of the EU ETS.

Table 21. EU ETS Terms and Definitions

3.17.1 Additional Responsibilities

Technical Services Manager

The Technical Services Manager will be accountable for the following:

- Ensuring SHLNG's compliance with the EU ETS monitoring and reporting obligations.

Senior Environmental Engineer

The Senior Environmental Engineer will be responsible for the following:

- Collecting data and preparing SHLNG's Annual Emissions Monitoring (AEM) Report and Annual Activity Level Report.
- Submitting SHLNG's verified Annual Emissions Monitoring (AEM) Report, the Annual Activity Level Report and any other reports required by the ETS regulator.
- Communicating EU ETS requirements to all relevant personnel.
- Maintaining current working knowledge of EU ETS legislation.
- Hosting the verification process to ensure that emissions and activity levels reported are verified.
- Preparing data and gathering supporting evidence to enable verification.
- Preparing reports required by the regulator
- Validating data prior to verification.
- Notifying the Technical Services Manager of any planned or effective changes to the capacity, activity level or operation of the installation or where activity or capacity levels change significantly.
- Engaging the services of a United Kingdom Accreditation Service (UKAS) accredited verifier.
- Reporting EU ETS performance and budget requirements for EU ETS compliance to senior management.
- Notifying the NRW in accordance with the Monitoring and Reporting Regulation at least 14 days prior to commencement of any of the following circumstances or, where this is not practicable, as soon as possible thereafter:
  - Where there is a temporary change to its monitoring methodology as specified in Article 23.
  - Where tier thresholds are exceeded or equipment is found not to conform to requirements, which require corrective action as specified in Article 28(1).
  - Where a piece of measurement equipment is out of operation as specified in Article 45.
  - Where an installation with low emissions exceeds the relevant threshold as specified in Article 47(8).

  Note: *Notification is in accordance condition 10 of the EU ETS Greenhouse Gas (GHG) permit and must include details of the factor, and the reasons why compliance has been or may be prevented. Where the non-compliance is in respect of the required monitoring and reporting methodology, the notification must include the following information to satisfy the Regulator:*

  - Details of the interim monitoring and reporting methodology adopted by SHLNG.
  - Proof of the necessity for a change to the monitoring and reporting methodology.
  - Details of the measures that have been or will be taken to enable a prompt restoration of compliance.
- Notifying the NRW when a significant reduction in capacity occurs in accordance condition 11 of the GHG permit.
- Notifying the NRW when any qualifying partial cessation occurs in accordance condition 12 of the GHG permit.
- Notifying the NRW of any planned or effective changes to the capacity, activity level or operation of the installation by 31 December in the year in which the change was planned or has occurred,

unless already notified in accordance with other requirements of the GHG permit, in accordance condition 14 of the GHG permit.

Operations Manager

The Operations Manager will be responsible for the following:

- Ensuring operational and maintenance activities are implemented in full compliance with the requirements of the EU ETS.
- Ensuring that fuel-gas, send out gas flow and composition data and diesel-consumption data are measured continuously and are made available to the Senior Environmental Engineer.
- Informing the Senior Environmental Engineer immediately of any event or condition, such as meter maintenance, malfunction or other failure, or unusual operating conditions, that may affect the EU ETS monitoring and reporting process, as per the Flowchart of Operational Guidance on CEMS.
- Providing assistance during the annual verification process, as required.

Maintenance Superintendent

The Maintenance Superintendent will be responsible for the following:

- Ensuring that maintenance and metering activities are implemented in full compliance with the requirements of the EU ETS.
- Ensuring that fuel gas metering and export metering (including the gas chromatographs) are correctly maintained, checked and calibrated, in accordance with EU ETS requirements as set out in this section of the manual.
- Ensuring that fuel gas metering online compensation for pressure (and temperature) are enabled (i.e. are switched on) and providing evidence of this as required.
- Ensuring that all maintenance, calibration breakdown response and metering training services provided are delivered by competent and suitably accredited personnel, in accordance with EU ETS requirements and SHLNG procedures.
- Informing the Senior Environmental Engineer (or, if not available, the Technical Services Manager) immediately of any event or condition, such as meter failure, malfunction, breakdown, or non-conformance with calibration requirements, or any other problem with the fuel gas metering and export metering (including the gas chromatographs), that may affect the EU ETS monitoring and reporting process.
- Maintaining all relevant records to demonstrate traceable compliance.

Commercial Adviser

The Commercial Adviser will be responsible for the following:

- Ensuring full compliance is achieved with the EU ETS (as all compliance is completed from SHLNG's EU Registry Account).
- Performing emission trading year-end steps in the registry in accordance with the EU Emission Trading Scheme requirements (nominate a verifier in registry, propose emissions, ensure the verifier has verified the proposed emissions in the Registry, and surrender allowances).
- Nominating a United Kingdom Accreditation Service (UKAS) accredited verifier, before proposing emissions.
- Proposing the reportable emissions in the Registry and ensuring that this figure is verified by the EU ETS Verifier in the Registry by 31st March each year.
- Surrendering required units to cover the annual emissions, by 30 April each year.
- Ensuring and checking that the SHLNG Registry account has complied each year.
- Managing and maintaining the SHLNG Registry account and the provision of adequate allowances.
- Approving the purchase or sell decision.
- Instructing the third party brokerage service.

- Approving the emissions trading market where purchasing and selling takes place.
- Approving the fees to the third party brokers

Finance Manager

The Finance Manager will be responsible for the following:

- Covering the responsibilities of the Commercial Adviser: if necessary interacting with the EU ETS Registry, including surrendering allowances, confirming actions in the EU ETS registry account and other actions in the EU ETS Registry.
- Performing budgetary actions associated with maintenance of the SHLNG EU Registry account, and providing necessary support to ensure SHLNG fully complies with the EU ETS.

Maintenance Section Personnel

Maintenance Section personnel will be responsible for the following:

- Ensuring that equipment remains reliable and compliant to its intended function, as detailed within this procedure.
- Informing the Maintenance Superintendent immediately of any event or condition, such as meter failure, malfunction, breakdown, or non-conformance with calibration requirements, or any other problem with the fuel gas metering and gas chromatographs that may affect the EU ETS monitoring and reporting process.

Process Supervisor

The Process Supervisor will be responsible for the following:

- Informing the Senior Environmental Engineer (or, if not available, the Technical Services Manager) immediately of any event or condition, such as meter maintenance, failure, malfunction, breakdown, or non-conformance with calibration requirements, or any other problem with the fuel gas metering, send out gas export metering and gas chromatographs, firewater pumps, Essential emergency generators, Flare, if and when using temporary sources of combustion and when boil-off gas is used as a fuel, that may affect the EU ETS monitoring and reporting process, as per the SHLNG Operational Guidance on Continuous Environmental Monitoring, (available on the LAN and Operator Control Panel in the Central Control Room CCR).
- Recording in the PS handover log when boil off gas is used as a fuel, when flare pilot usage commences and ends, and when flaring commences and ends
- Informing the Senior Environmental Engineer (or, if not available, the Technical Services Manager) immediately of any flaring event, as per the SHLNG Operational Guidance on Continuous Environmental Monitoring.

CCR operators

CCR operators will be responsible for the following:

- Oversight and management control of process variables and emissions. Monitoring status of equipment and associated continuous monitoring systems for fuel gas (flow, density, temperature, pressure) and send out gas export metering (quality and quantity), and when boil-off gas is used as a fuel, to ensure continuous reliable operations, as detailed within this procedure.
- Informing the Process Supervisor immediately, and entering a SAP notification of correct priority, of any event or condition, such as meter failure, malfunction, breakdown, or non-conformance with calibration requirements, or any other problem with the fuel gas metering and send out gas export metering and gas chromatographs, and when boil-off gas is used as a fuel, that may affect the EU ETS monitoring and reporting process.
- Performing the actions assigned in the SHLNG Operational Guidance on Continuous Environmental Monitoring, and the sections on Environmental Controls; Monitoring and Reporting & Notification.

- Advising the Process Supervisor (PS) when boil off gas is used as a fuel, when flare pilot usage commences and ends, and when flaring commences and ends

3.17.2 Emission Sources and Points

CO2 emission points

The CO_2 emission points for the Terminal are detailed in the Table 22 below and in the current approved monitoring plan for the installation, and are illustrated in Appendix 10. Copies of the approved EU ETS monitoring plan are presented in the relevant GHG permit.

Emissions Source	Emissions Point	Description
S1	EP1	Submerged Combustion Vaporisation Unit 1
S2	EP2	Submerged Combustion Vaporisation Unit 2
S3	EP3	Submerged Combustion Vaporisation Unit 3
S4	EP4	Submerged Combustion Vaporisation Unit 4
S5	EP5	Submerged Combustion Vaporisation Unit 5
S6	EP6	Submerged Combustion Vaporisation Unit 6
S7	EP7	Submerged Combustion Vaporisation Unit 7
S8	EP8	Submerged Combustion Vaporisation Unit 8
S9	EP9	Submerged Combustion Vaporisation Unit 9
S10	EP10	Submerged Combustion Vaporisation Unit 10
S11	EP11	Submerged Combustion Vaporisation Unit 11
S12	EP12	Submerged Combustion Vaporisation Unit 12
S13	EP13	Submerged Combustion Vaporisation Unit 13
S14	EP14	Submerged Combustion Vaporisation Unit 14
S15	EP15	Submerged Combustion Vaporisation Unit 15
S16	EP16	Essential Emergency Generator
S17	EP17	Essential Emergency Generator B
S18	EP18	Diesel Firewater Pump A
S19	EP19	Diesel Firewater Pump B
S20	EP20	Jetty Firewater Pump
S21	EP21	Site flare
S22	EP22	Temporary operational, maintenance and heating activities.
S23	EP23	Temporary ancillary power generation.
S24	EP21	Flare pilots

Table 22. EU ETS Emission Points

A site diagram showing the South Hook LNG Terminal heat benchmark sub-installation (non-carbon leakage) and flow diagram of SCV showing the main material and energy flows is presented in Appendix 13.

A process flow diagram showing the main material and energy flows and the South Hook LNG Terminal heat benchmark sub-installation (non-carbon leakage) is presented in Appendix 14.

3.17.3 Source Streams

CO2 emissions source groups

The CO_2 emissions from the following four emissions source groups are to be monitored and reported for EU ETS purposes

- F1 – fuel gas
- F2 – diesel
- F3 – boil off gas
- F1, F3 – flared gas
- F4 - liquefied petroleum gases (including propane & butane)
- F5 – acetylene

Of these streams, F1 fuel gas is considered a major source stream as it normally account for greater than 99% of the installations annual emissions of CO_2, and accordingly EU ETS Monitoring and Reporting Regulation are at Tier 4 (the highest (top tier) methodology. The other source streams are classified as de-minimis source streams for EU ETS monitoring and reporting and as such, the methodology for the monitoring of these emissions is less rigorous than for F1 fuel gas.

Emissions from each of the source streams will be determined by multiplying the activity data related to the amount of fuel combusted, expressed as Tera Joules (TJ) based on the net calorific value (NCV), with the corresponding emission factor, expressed as tonnes CO_2 per Tera Joule (tCO_2/TJ) and with the corresponding oxidation factor. However, for AEM electronic reporting in the ETS Portal (ETSWAP Reporting), the reporting units for Net Calorific Value (NCV) of fuels have changed in Phase III. For Phase III emissions, NCV for fuels must be reported in GJ/tonne (or GJ/Nm^3) rather than TJ/tonne or TJ/Nm^3. This will be addressed at the final stage of data preparation, just prior to inclusion in the Annual Emissions Monitoring report (AEM).

3.17.4 Monitoring Methodology Major Source: F1 Fuel gas

CO2 emissions calculation

To enable CO_2 emissions to be calculated, the variables listed below will be determined for F1 fuel gas, in accordance with the EU Monitoring and Reporting Regulation 2012 and the Greenhouse Gas (GHG) Permit:

- Fuel gas consumption (known as activity data in EU ETS terminology).
- Net calorific value (NCV).
- Fuel gas emission factor.
- Oxidation factor.

Since F1 fuel gas is classified as a major source stream (see note), it should be monitored at the highest levels of certainty under the EU ETS system known as top tier. Tier requirements determine the monitoring approach to be adopted for the source stream. The tier requirements for F1 fuel gas are shown in the table below and can be found in the current EU ETS Greenhouse Gas (GHG) permit.

Emission Source	Source Stream	Tiers to be Applied (As specified in the EU ETS Monitoring and Reporting Regulations Annex V)						Source Category
		Volume (Activity data)	Net CV	Emission Factor	Composition Data	Oxidation Factor	Conversion Factor	
S1-S15, S24*	F1	4	3	3	N/A	1	N/A	Major

Note: *Emission source S24 (flare pilots) would, on its own, be a de-minimis source and as such lower tiers, could be applied which would be compliant with the MRR. However, the natural gas (F1) that they combust is quantified by the Tier 4 compliant coriolis meter (TAG 49-FT-93001) and the F1 composition provided by the Tier 3 compliant gas chromatograph, i.e. highest 'top' tiers are met regardless of S24 on its own being a de-minimis source. Therefore no (MMR) correction is required as the gas combusted in the emission source S24 (flare pilots) is metered and accurately quantified in coriolis fuel gas flow meter and included in and reported in the AEM via the standard permitted calculation for CO_2 mass release from the SCVs (i.e. the Source Stream F1 data for Emission Sources S1 to S15). Therefore the emissions from source S24 will not be reported separately in the AEM.

Monitoring Tier Requirements: F1 Fuel Gas Major Source Stream

The requirements for F1 fuel gas monitoring shown in the table above are as follows:

- Activity data i.e. the volume of fuel gas combusted in the SCVs has to be determined with a maximum permissible uncertainty of +/-1.5%.
- The net calorific value for F1 fuel gas should be determined in accordance with article 32 to 35 of the EU ETS Monitoring and Reporting Regulation 2012 as summarised below.
- The emissions factor should be determined in accordance with article 32 to 35 of the EU ETS Monitoring and Reporting Regulation as summarised below.
- The oxidation factor to be applied to the emissions calculation is 1.

The requirements of articles 32 to 35 of the Monitoring and Reporting Regulation 2012 that relate to SHLNG F1 fuel gas NCV and emissions calculation factors are as follows:

- F1 fuel gas analyses, sampling, calibrations and validations for the determination of calculation factors are performed by applying methods based on corresponding EN standards. Where such standards are not available, the methods shall be based on suitable ISO standards or national standards
- Where online gas chromatographs are used for emission determination, the operator must obtain approval from the competent authority for the use of such equipment. The equipment must be used only with regard to composition data of gaseous fuels and materials. As minimum quality assurance measures, the operator must ensure that an initial validation and annually repeated validations of the instrument are performed.
- The minimum frequency for analyses for F1 fuel gas is weekly.
- The methodology applied to meet these monitoring requirements is described in the sections below.

Fuel gas flow metering (F1 activity Data)

A Tier 4 monitoring approach is used to determine fuel gas flow to the SCV units, measured in Tera Joules.

Total fuel gas for all SCVs will be continuously measured using a coriolis flow meter, which conforms to the requirements of BS ISO 10790:1999 (TAG -49-FT-93001).

The coriolis meter is located at the fuel-gas inlet line common to all 15 SCV units. Fuel gas totals will be transmitted to a flow computer from the meter via an RS 485 serial link. The fuel gas system also obtains gas composition data from the export gas chromatographs via the plant Distributed Control System (DCS).

The composition of the fuel gas is the same as the export gas. Nitrogen is added in the re-condensers, which are upstream of the vaporisers. Fuel gas is taken from the re-vaporised LNG stream; downstream of the vaporisers. Therefore, SCV fuel gas is the same composition as the send out gas, as demonstrated on P&ID 204/44/69/PR/DR/PI/018 & 204/43/69/PR/DR/PI/014.

Secondary instrumentation includes a fuel-gas pressure transmitter and a fuel-gas temperature element both of which feed to the flow computer. Therefore, the fuel gas meter measurements are compensated for pressure and temperature, and this is checked as part of the routine metering checks arranged by the Maintenance Section (Reference Standard Maintenance Procedure SMP-001 in Fiscal Gas Metering System Maintenance Procedure PE.06A.00.085.00. A dedicated flow computer is provided to calculate mass, standard volume and energy flow rates on an hourly, daily and monthly basis, and to calculate cumulative totals.

The base density, superior (gross) calorific value and Wobbe index are calculated from the full gas composition in accordance with ISO 6976. Net calorific value is calculated in the PIMS reporting tool according to ISO 6976 using the fuel gas composition. Emissions factor is determined according to ISO 6974 Natural gas - Determination of composition with defined uncertainty by gas chromatography. The Fuel gas F1 metering installation is shown in Figure 5 below:

Fuel gas F1 metering installation

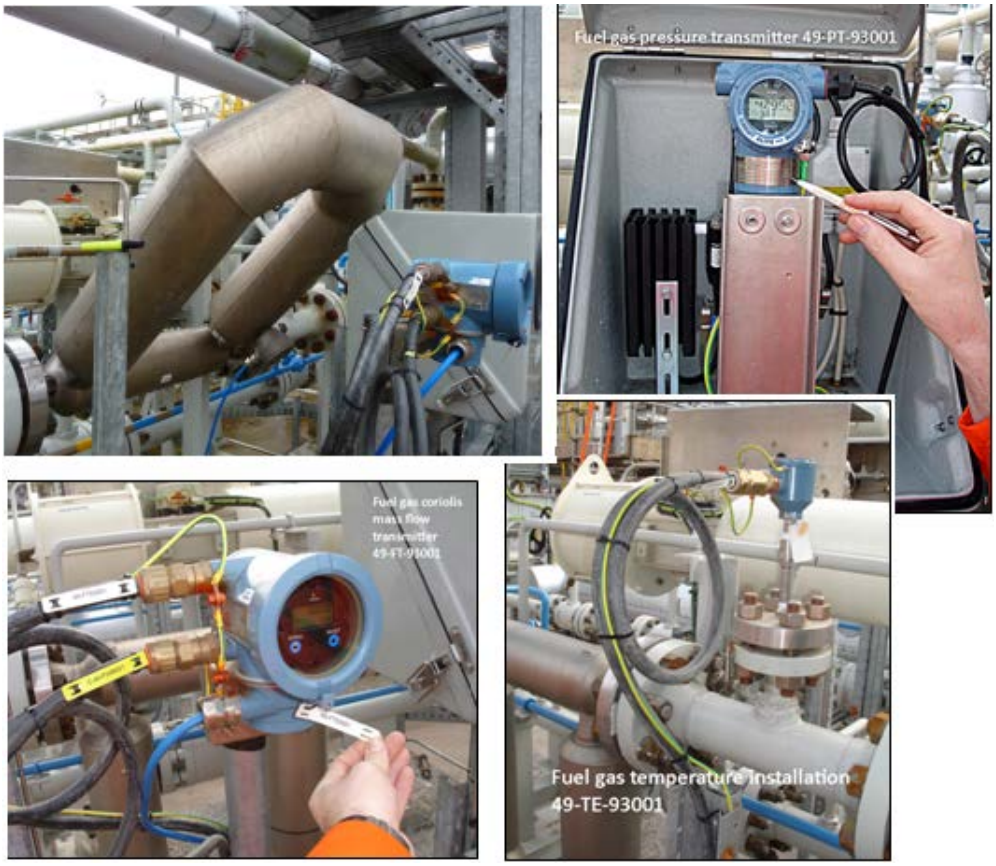


Figure 5. Fuel Gas F1 Metering Installation

Detailed data sheets for the flow, pressure and temperature meters are available. Data from the coriolis meter is transmitted continuously via the DCS to a computer network in the Central Control Room.

The following reference standard conditions apply to all flow calculations:

- Temperature 0 °C

- Pressure 1.01325 bar A

Correction to Nm^3 will be required for final reporting and this shall be done at the final reporting stage using the formulae shown in Figure 6 below:

$$V_2 = \frac{P_1 T_2 V_1}{P_2 T_1}$$

P_1 and P_2 are the same so they cancel each other out:

$$V_2 = \frac{T_2}{T_1} \times V_1$$

$$V_2 = \frac{273.15}{288.15} \times V_1$$

$V_2 = 0.9479 \times V_1$

P_1 = pressure at 101 325 Pa
T_1 = temperature at 288.15K (15^0C)
V_1= gas volume at metering conditions (Sm^3)

P_2 = pressure at 101 325 Pa
T_2 = temperature at 273.15k (0^0C)
V_2 = gas volume at standard conditions (Nm^3)

Figure 6. Correction Equation to Nm3

Reference: Gas volume at standard conditions (Nm^3) MRR Article 50. (Requirement to report in Nm^3).

Note: *The V1 value in the reference above is from the flow computer calculations that are referenced to the Standard Temperature and Pressure conditions (15 °C and 1.01325 bara = STP compensated not metering condition). Pressures P1 and P2 for both STP and Normal are the same, therefore converting to Normal only requires a temperature adjustment.*

Fuel Gas Flow Computer (F1)

A dedicated flow computer is located in the CCR. The flow computer communicates with the meter using an RS 485 serial interface, approximately once per second. The flow computer performs the following functions:

- Provides a serial data link to receive data from a coriolis meter using a serial communications link (RS 485).
- Records the measure of pressure of the gas utilising a transducer fitted in the meter line (4 to 20 mA).
- Records the measure of temperature of the gas utilising a transducer fitted in the meter line.
- Accepts, from supervisory computer, a downloaded, normalised gas composition for use in AGA 8 and ISO 6976 calculations.
- Calculates calorific value, density at standard conditions, relative molar mass, relative density and Wobbe index in accordance with the downloaded chromatograph data and ISO 6976 (2005).
- Calculates density from compressibility factor, at line conditions derived in accordance with AGA8 (1994).
- Calculates volume at gross and standard conditions, mass and energy flow rates.

- Calculates cumulative, daily, previous day and maintain record for mass, volume at standard conditions and energy.
- Calculates cumulative, daily/previous day, period/previous period totals for mass, gross volume, standard volume and energy. The period interval will be set to 1 hour.
- Provides a single Ethernet link to transfer data to, and receive commands from, a supervisory computer. Flow computer calculations use the following standard references:
  - AGA8 1994
  - ISO 6976: 2005
  - ISO 6974
  - Flow Rate General Mathematic principles
  - Totalisation General Mathematic principles
  - Fuel Gas Analysis (F1 Net Calorific Value (NCV) and emissions calculation factors)

The Coriolis meter calculation flow chart is presented in Appendix 12.

Fuel gas composition analysis (F1 NCV and emissions calculation factors)

There is no requirement to perform further analysis on fuel gas as it can be demonstrated that send out gas will always be used to fuel the SCVs once the site has been commissioned. Refer to P&ID 204/44/69/PR/DR/PI/018 & 204/43/69/PR/DR/PI/014, which demonstrate the fuel gas is identical to send out gas.

A Tier 3 monitoring approach will be applied to determine net calorific value and emissions factors of the fuel gas flow to the SCV units. Both the net calorific value and emissions factor will be derived from representative sample analyses from an online gas chromatograph. The chromatograph is located immediately downstream of the export gas metering station in the Analyser House 1 (AH1).

Gas compositional data from the online chromatograph is transmitted continuously via the plant DCS to a computer network in the CCR. It then passes into PIMS where the fuel-gas NCV and emissions factor are calculated.

Calculations are conducted in accordance with EN ISO 6976:2005 Natural gas - calculation of calorific values, density, relative density, and Wobbe index from composition, and ISO 6974 Natural gas - Determination of composition with defined uncertainty by gas chromatography.

Further details are provided in Appendix 9 – Basis for Fuel Gas Emissions Factor and NCV Calculation.

F1 Fuel Gas Sampling Plan

Fuel gas is sampled (and analysed) on a continuous basis using an online gas chromatograph. A daily fuel gas composition is calculated from the average composition of fuel gas. The sampling system for the gas chromatograph system, designed in accordance with ISO 10715, comprises a sample probe, sample line, pressure reduction and sample conditioning unit to provide a fast loop sample. The pressure reduction and sample conditioning units have duty standby streams and contain sufficient isolation valves to facilitate maintenance of each component. The regulators and sample lines are temperature controlled to avoid liquid drop out.

This sampling plan meets the requirements for at least weekly sampling for natural gas stipulated the EU Monitoring and Reporting Regulations (Article 35, Annex VII). The continued appropriateness of the sampling plan will be evaluated as part of EU ETS QA processes, as described in the Section on Quality Assurance and Control.

3.17.5 Monitoring Methodology De-Minimis Sources: F2 Gas oil, F3 Boil-off Gas, F1, F3 Flare Gas, F4 Liquefied Petroleum Gases, F5 Acetylene

Tier requirements for de-minimis source streams

Since these source streams are classified as de-minimis, they can be monitored at lower levels of certainty under the EU ETS system. Tier requirements determine the monitoring approach to be adopted for each source stream. The tier requirements for the de-minimis source streams are shown in Table 23 below and can be found in the current EU ETS GHG Permit

Emission Source	Source Stream	Tiers to be Applied (As specified in the EU ETS Monitoring and Reporting Regulations Annex V)						Source Category
		Volume (Activity data)	Net CV	Emission Factor	Composition Data	Oxidation Factor	Conversion Factor	
S16-S20, S22, S23	F2	No tier	2a	2a	N/A	1	N/A	De-minimis
S1-S15	F3	No tier	3	3	N/A	1	N/A	De-minimis
S21	F1, F3	No tier	N/A	1	N/A	1	N/A	De-minimis
S22	F4	No tier	2a	2a	N/A	1	N/A	De-minimis
S22	F5	No tier	1	1	N/A	1	N/A	De-minimis

Table 23. Monitoring Tier Requirements De-minimis Source Streams

For all de-minimis source streams, the activity data no tier requirement means these value may be determined using conservative estimations.

For F2 gas oil the NCV and emissions factor Tier 2a requirements mean that these values are obtained from the latest UK National GHG Inventory.

For F3 boil-off gas, the composition is assumed to be the same as the F1 fuel gas composition and the corresponding NCV and emissions factors are used that has been derived at a Tier 3 level described in the previous section of this procedure.

For F1, F3 flare gas no NCV is used according to the EU ETS monitoring and reporting regulations and a Tier 1 emissions factor of 0.00393 t CO_2 /Nm^3 derived from the combustion of pure ethane is used as a conservative proxy for flare gases.

The methodologies applied to meet these monitoring requirements are described in the sections below.

Gas oil flow (F2 activity data)

Gas oil is used in the standby essential emergency electrical generators and under normal operations the generators operate for a short test run periodically and generate <100 tonne of CO_2 per annum. In accordance with the EU Monitoring and Reporting Regulation 2012, the generators are permitted as a de minimis source and measurement using a no tier estimation method may be applied.

The fuel consumption of the generators will be estimated from the monthly running times and a known consumption rate. For the essential emergency generators, this rate is 185 litres/hour for 50% load (normal test load) and up to 424 litres/hour for maximum load state. This information has been provided by the vendor and is contained in their data sheet 580143891-PO-44501-MD2-001_804b5f4a_CURRENT, Rev 2 status F.

The land based firewater pumps have a consumption rate of 97.4 litres/hour and are tested at 100% load.

Jetty firewater pump have a consumption rate of 164 litres/hour and are tested at 100% load.

Gas/diesel oil (F2) may also be used in temporary ancillary power generation (S23) and temporary operational, maintenance and heating activities (S22). This is a de-minimis source stream so consumption (activity data) is estimated via hours run x average 'surrogate' consumption factor, or estimated from equipment logs or estimated usage data or purchasing data.

Factors for diesel density to convert to tonnes are from the Digest of UK Energy Statistics (DUKES), available from the DECC website. The density factors are updated annually via this source.

Gas oil emission factor and NCV (F2 calculation factors)

UK National GHG Inventory factor (UK-specific emission factor) should be applied. However, country-specific factors are subject to change and should therefore be regularly checked.

Boil-off gas flow (F3 activity data)

BOG is used to start the SCVs during initial commissioning and potentially following a shutdown period. Very small amounts are used to fire one SCV initially, which is then switched to fuel gas F1 once vaporisation is established. The flow of the BOG during these periods is measured by an orifice plate meter located at the fuel-gas inlet line common to all 15 SCV units (TAG 48-FT-93103). This measurement does not have real time temperature and pressure correction, but is considered a de-minimis source for the purposes of EU ETS reporting.

Boil-off gas calorific value and emissions factor (F3 calculation factors)

The BOG composition is assumed the same as fuel gas F1, which is derived from an online gas chromatograph as described in this procedure.

Flared gas volume (F1, F3 activity data)

There is no routine flaring (S21) during normal operations; however, emissions from the flare will occur in the event of LNG tank and/ or system pressures rising excessively. Emissions from the flare during such events are not monitored directly but activity data will be estimated based on gas flow and the duration of the flaring event in accordance with this Manual under the section on Environmental Monitoring Procedure

Flared gas emissions factor (F1, F3 calculation factor)

An EU ETS Monitoring and Reporting Regulation emissions factor of 0,00393 t CO_2 /Nm^3 derived is used as a conservative proxy for flare gases (as per page 72 of the Monitoring and Reporting Regulation, Annex IV section D Flares Tier 1 methodology).

Liquefied petroleum gases (F4 activity data) and Acetylene (F5 activity data)

Liquefied petroleum gases (including propane and butane) and acetylene are, or may be, used for temporary operational, maintenance and heating activities. These are de -minimis source streams so consumption (activity data) may be quantified using a no tier estimation method, such as purchasing data or estimated usage data.

Liquefied petroleum gases (F4) and Acetylene (F5) emission factor and NCV (F4 and F5 calculation factors)

UK National GHG Inventory factor (UK-specific emission factor) shall be applied for F4. However, country-specific factors are subject to annual update.

The regulator's guidance note entitled, 'De-minimis emissions sources' states, 'For acetylene a tier 1 is applied to NCV (48.2GJ/tonne) and EF (3.38 tCO2/tonne) when calculated stoichiometrically

Oxidation factor (F1, F2, F3, F4, F5)

For liquid and gaseous fuels, oxidation will be permitted at Tier 1 level and require the use of a specified oxidation factor of 1.0.

F5 MRR Annex II section 2.3 - use a specified oxidation factor of 1.0.

3.17.6 Measurement Devices - Quality Assurance and Calibration

Maintaining the integrity of metering data

Quality assurance of measuring equipment is ensured in accordance with Article 58 and 59 of the MRR, as described below.

The Maintenance Superintendent will be responsible for the integrity of the data generated by the fuel gas flow metering and gas chromatographs. This will be ensured through a preventive maintenance programme and through the application of the SHLNG Fiscal Gas Metering System Maintenance Procedure (PE.06A.00.085.00).

Gas chromatographs will be calibrated periodically (currently annually) by a company accredited to EN ISO 17025:2000. Copies of the accreditation certificates relating to off-site laboratory calibrations will be retained on file.

Fuel gas flow metering will be calibrated periodically (currently annually) and will comply with ISO 5168 for uncertainty and ISO 10790.

Details of all maintenance and calibration activities will be recorded and maintained by the Maintenance Section.

3.17.7 Uncertainty Assessment

Accuracy of reported emission data

In accordance with the EU ETS Monitoring and Reporting Regulation, SHLNG has performed an uncertainty assessment to understand fully the impact of uncertainty on the overall accuracy of reported emission data. This assessment is presented in the document Uncertainty Calculations – coriolis Fuel Gas Meter 49-FE-93001 rev 1.2, produced by Kelton Engineering Ltd, Issue date 7.12.2011 (Document Ref: NK3108F – 001).

The Kelton Engineering's Fuel Gas System Uncertainty Calculations demonstrate that the F1 Fuel Gas coriolis Metering System [49-FT-93001] installed at the Terminal can achieve a flow measurement uncertainty of ≤±1.5% of reading in accordance with top tier (Tier 4) requirements for major sources in the EU ETS Monitoring and Reporting Regulation 2012 (see page 6 paragraph 3 of the Kelton Report (Document Ref: NK3108F – 001).

The assessment addresses uncertainties associated with the metering equipment, calibration and any uncertainty connected to the manner in which the metering equipment is used.

For the purposes of verification, SHLNG has specified that the accuracy of the metering equipment is numerically smaller than the uncertainty thresholds of the tiers applied from the EU Monitoring and Reporting Regulation.

The uncertainty assessment will quantify the uncertainties of all variables and parameters used for the calculation of the annual emission level in accordance with the following:

- ISO - Guide to the Expression of Uncertainty in Measurement (1995)4 and ISO 5186:2005
- 2000 Good Practice Guidance
- Revised 1996 IPCC Guidelines (Reporting Instructions)

3.17.8 Data Flow Activities

Data management and control

Management of data flow activities are in accordance with Article 57 of the MRR.

The PIMS central data management system automatically collects, stores and processes data in a single, shared, open relational database. PIMS provides a platform to enable the relevant software to manipulate and process the raw data collected.

Continuous data from the fuel gas metering and gas chromatographs are transmitted in real time, via the DCS, to the CCR, where it will then be stored in PIMS. The data is displayed live in the environmental screen on the DCS, which provides operational oversight. In addition, the data can be extracted to the Environmental Report MS Excel spreadsheet from the PIMS Exaquantum database.

Process operators continuously monitor emissions monitoring and alarm information in real-time on the DCS. Alarms are set out in the environmental screen in the DCS and described in the section of this manual on Environmental Controls (also see alarm set-point set in the DCS for CEMS and as specified in Appendix 3 of this manual). Should an alarm be activated (indicating an expected emission limit value (ELV) is approached or a statutory meter or environmental monitoring data is not available) the corresponding preventative, corrective actions and reporting and notifications requirements are specified in the following Sections:

- SHLNG Operational Guidance on Continuous Environmental Monitoring, (available on the LAN and Operator Control Panel in the Central Control Room CCR).
- Environmental Controls section of this manual
- Environmental Reporting and Notification section of this manual

The following Figure 7 illustrates the data flow from meter readings to PIMS reports.

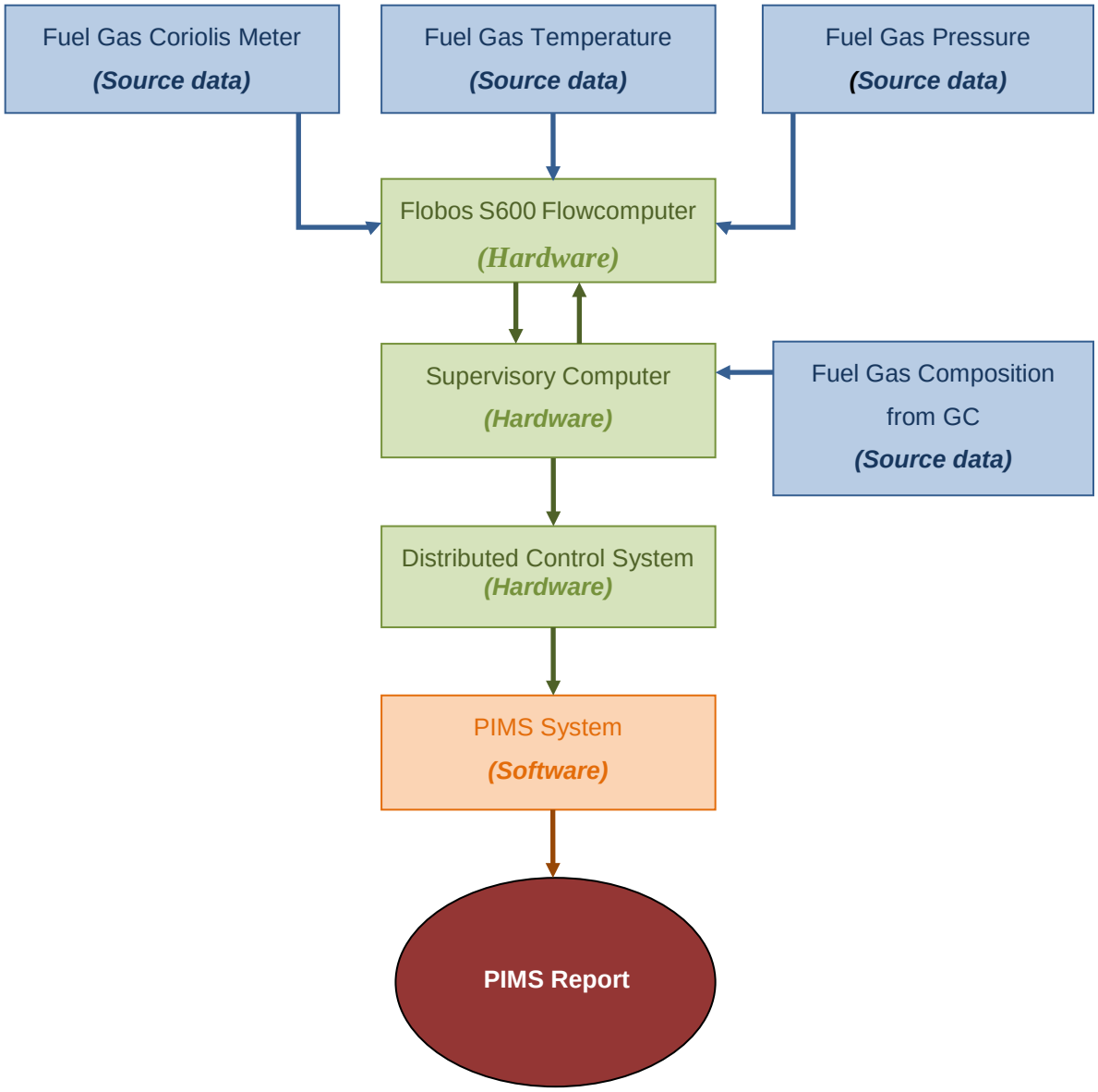


Figure 7. GHG Data Flow Diagram

Approved check data is also available. This is a daily EU ETS emissions derived from the quantity of exported gas and is automatically calculated in PIMS reporting using a factor derived from historical data trends

Fuel gas emission calculation (F1) - MMR & MMP

CO_2 emission will be calculated within PIMS using the following formula:

CO_2 emissions = fuel consumption (TJ) * emission factor (tCO_2/TJ) * oxidation factor

F1 fuel gas emissions will be calculated once every 24 hours in the PIMS system. Due to the relatively homogenous nature of the fuel gas, the emission factor and NCV will be relatively constant and it is therefore considered sufficient to calculate CO_2 emissions once every 24 hours. The emissions are calculated and recorded in the PIMS report which is presented as an MS Office Excel file. These daily

CO_2 figures are then totalised and along with NCV and emissions factors for the year are entered into the online Emissions Trading Portal Annual Emissions Monitoring (AEM) report.

For the Monitoring Methodology Plan (MMP) and Free Allocation Regulation (FAR), the **system boundary** of the South Hook LNG Terminal heat benchmark sub-installation (non-carbon leakage) is defined by the major combustion processes which are principally where (CO2) emissions occur and heat is exchanged/ consumed, namely the Submerged Combustion Vaporisers (SCVs). The heat benchmark sub-installation consists of the 15 submerged combustion vessels (S1-S15), these are fed by the natural gas (F1). For the purposes of the MMP, and required future activity level assessments, the South Hook LNG Terminal permitted installation (Permit number UK-W-IN-11929) comprises a single heat benchmark sub-installation (non-carbon leakage). Therefore, the fuel and emission sources included in the heat benchmark sub-installation (non-carbon leakage) are F1 natural gas (activity data only) and emission sources: S1 – S8 (SCV 1A – SCV 1H) and S9 – S15 (SCV 2A – SCV 2G). All other fuels and emission sources are deminimis/ trivial and so are excluded from the free allocation/ South Hook heat benchmark sub-installation (non-carbon leakage). In summary, there is a single heat sub-installation that consists of the 15 submerged combustion vaporisers (S1-S15), these are fed by natural gas (F1). All other fuel and emission sources are excluded from free-allocation. Therefore, in the calculations of TJ (net) of fuel input to and heat consumed within the installation imparted to the LNG (i.e. the measurable heat produced) by the SHLNG heat benchmark sub-installation (non-carbon leakage) only activity data for F1 natural gas are used, other data being excluded from the free allocation.

Monitoring of annual activity level data is undertaken in accordance with the approved Monitoring Methodology Plan (MMP) and Free Allocation Regulation (FAR) for the major source stream Fuel gas F1 only, as summarised below:

The **fuel input** is calculated via methods in accordance with the monitoring plan approved under the MMR (Regulation (EU) No. 601/2012), and the energy content is calculated via methods for determining calculation factors in accordance with the monitoring plan approved under the MMR (Regulation (EU) No. 601/2012). Therefore, TJ (net) of fuel gas input (for the production of measurable heat) into the SHLNG heat benchmark sub-installation (non-carbon leakage) is calculated from the normal m^3 and net calorific value of the fuel gas, in accordance with the requirements of the GHG permit and MMR (thereby following the hierarchical order of the FAR).

The MMP methodology used for the **determination of Fuel input for production of measurable heat** is summarised as follows:

Fuel gas for the SCVs (F1) is continuously measured using a coriolis flow meter (TAG -49-FT-93001). The fuel gas (F1) system obtains gas composition data from online gas chromatographs, from which the emissions factor and NCV are calculated. Flow and gas composition data are transferred to the data management system (PIMS) for storage. Data from PIMS are exported to a spreadsheet for ETS data calculation and reporting. Data from the chromatograph are used to provide daily NCV and emissions factors. The TJ (net) of fuel gas input (for the production of measurable heat) into the SHLNG heat benchmark sub-installation (non-carbon leakage) is calculated for the activity data for F1 natural gas (Nm3) only and net calorific value of the fuel gas, in accordance with the requirements of the GHG permit and MMR (thereby following the hierarchical order of the FAR). The calculation, as a product of Fuel Gas volume (Nm3) x volumetric NCV (MJ/Nm3), converted to TJ, is performed daily and these values are then summed for the reporting year. This is calculated for activity data for F1 natural gas only, other data being excluded from the free allocation. The annual TJ (net) of fuel gas input (for the production of measurable heat) into the SHLNG heat benchmark sub-installation (non-carbon leakage) is calculated by deducting the TJ of natural gas used in the flare pilot (S24) per annum from total TJ (net) of fuel gas input to the SCVs, specifically by deducting TJ equivalent to a set fixed nominal annual allowance of 540 Nm3 per annum of natural gas each year (assigned at a set fixed nominal 2.5 days usage per annum and at rate of 9 Nm3/ hour taken from manufacturers documentation; and applying the NCV (TJ/Nm3) for the

activity data for F1 natural gas as calculated for CO2 emissions reporting for the year in question. The flare pilot ignition system is used only when maintenance activities are being undertaken on the flare pellet ignition system, malfunction or corrective maintenance, this typically requires a down time of or about five days every two years.

NB:

- The net calorific value NCV for natural gas (F1) is determined as per the permitted monitoring plan, via use of permitted fiscal gas chromatographs.
- The TJ (net) of fuel input to SHLNG heat benchmark sub-installation (non-carbon leakage) is calculated for activity data for F1 natural gas only, other data being excluded from the free allocation.

Regarding the methods used for the **determination of measurable heat** at installation level and for the determination of annual activity levels: measurable heat flows are quantified using a method that is in accordance with 4.5. (d) of *Annex VII* of the FAR, namely: '*Readings of measuring instruments for indirect determination of a data set, provided that an appropriate correlation between the measurement and the data set in question is established in line with section 3.4 of Annex VII (FAR)'.* Net measurable heat flows are determined via a method that is in accordance with 7.2. of *Annex VII* of the FAR, namely: '*Method 3: Calculation of a proxy based on measured efficiency*'.

The MMP methodology used for the determination of measurable heat at installation level is summarised as follows:

Fuel gas for the SCVs (F1) is continuously measured using a coriolis flow meter (TAG -49-FT-93001). The fuel gas (F1) system obtains gas composition data from online gas chromatographs, from which the emissions factor and NCV are calculated. Flow and gas composition data are transferred to the data management system (PIMS) for storage. Data from PIMS are exported to a spreadsheet for ETS data calculation and reporting. Data from the chromatograph are used to provide daily NCV and emissions factors. The TJ (net) of fuel gas input (for the production of measurable heat) into the SHLNG heat benchmark sub-installation (non-carbon leakage) is calculated for the activity data for F1 natural gas (Nm3) only and net calorific value of the fuel gas, in accordance with the requirements of the GHG permit and MMR (thereby following the hierarchical order of the FAR). The calculation, as a product of Fuel Gas volume (Nm3) x volumetric NCV (MJ/Nm3), converted to TJ, is performed daily and these values are then summed for the reporting year. TJ (net) of heat consumed within the installation imparted to the LNG (i.e. the measurable heat produced/ consumed) by the SHLNG heat benchmark sub-installation (non-carbon leakage) is calculated by applying the net % efficiency of the SCVs, which is a set fixed value of 109.48% (net based) calculated from Q1 2019 data (using Original Equipment Manufacturer (Selas Linde) Specific Enthalpy Change). The Efficiency of the SCVs (% net fuel gas energy transferred to LNG in SCV), which was calculated as being 109.48%, was based on the net energy from the fuel gas consumed vs the calculated energy required at the specified delta T and pressure. >100% is as expected, as the SCV recovers energy from the water vapour product of combustion (i.e. some of the gross energy) which is therefore more than the net energy input, i.e. 109.48% because this includes:

1. the TJ (net) of fuel gas input (i.e. the TJ of the fuel gas calculated from Normalised Volume and Net CV (MJ)), and
2. some of the heat energy that is recovered in the SCV from recondensing a proportion of the water vapour product of combustion (i.e. some of the gross energy).

Therefore, for our process the % net fuel gas energy transferred to LNG in SCV is expected to be more than the net energy input. The measurable heat produced/ consumed by the SHLNG heat benchmark sub-installation (non-carbon leakage) is calculated for activity data for F1 natural gas only, other data being excluded from the free allocation. The annual TJ (net) of heat consumed within the installation imparted to the LNG is calculated by deducting the TJ of natural gas used in the flare pilot (S24) per annum from total TJ (net) of heat consumed within the SCVs, specifically by deducting TJ equivalent to a set fixed nominal annual allowance of 540 Nm3 per annum of natural gas each year (assigned at a set fixed nominal 2.5 days usage per annum and at rate of 9 Nm3/ hour taken from manufacturers documentation; and applying the NCV (TJ/Nm3) for the activity data for F1 natural gas as calculated for CO2 emissions reporting for the year in question. The flare pilot ignition system is used only when

maintenance activities are being undertaken on the flare pellet ignition system, malfunction or corrective maintenance, this typically requires a down time of or about five days every two years.

NB:

- The net calorific value NCV for natural gas (F1) is determined as per the permitted monitoring plan, via use of permitted fiscal gas chromatographs.
- The efficiency of heat transfer to the LNG is the SCV Efficiency Calculation Q1 2019 (using Selas Linde Specific Enthalpy Change) and is a set fixed value of 109.48% (net based).
- In the calculations of TJ (net) of fuel input to and heat consumed within the installation imparted to the LNG (i.e. the measurable heat produced/ consumed) by the SHLNG heat benchmark sub-installation (non-carbon leakage) only activity data for F1 natural gas are used, other data being excluded from the free allocation.

The MMP methodology used for the **determination of Directly attributable emissions** (Total direct emissions) is summarised as follows:

The directly attributable emissions to South Hook heat benchmark sub-installation are calculated as the product of the activity data for F1 natural gas (Nm3) used in the submerged combustion vaporisers (SCVs), multiplied by the volumetric net calorific value NCV (TJ/Nm3), multiplied by the oxidation factor (OF), multiplied by the emissions factor EF (tCO2/TJ). The NCV, OF and EF are all determined as per the permitted Monitoring Plan. The annual CO2 emissions attributable to South Hook heat benchmark sub-installation is calculated by deducting the trivial CO2 emissions associated with the flare pilot (S24) per annum from total CO2 emitted from the SCVs, specifically by deducting CO2 tonnes equivalent to a set fixed nominal annual allowance of 540 Nm3 per annum of natural gas each year (assigned at a set fixed nominal 2.5 days usage per annum and at rate of 9 Nm3/ hour taken from manufacturers documentation; and applying the NCV (TJ/Nm3) for the activity data for F1 natural gas as calculated for CO2 emissions reporting for the year in question. The calculation is as set out above for the directly attributable emissions. The flare pilot ignition system is used only when maintenance activities are being undertaken on the flare pellet ignition system, malfunction or corrective maintenance, this typically requires a down time of or about five days every two years. The directly attributable emissions to South Hook heat benchmark sub-installation are calculated for activity data for F1 natural gas only, other data being excluded from the free allocation.

All other elements are calculated using methods in accordance with the MMP, including the sub-installation data relating to fall-back sub-installations including:

(a) System boundaries of the sub-installation

(b) Method for the determination of annual activity levels

(c) Directly attributable emissions

(d) Fuel input to this sub-installation and relevant emission factor

(e) Measurable heat produced

Gas oil emission calculation (F2)

The calculation of emissions from the standby essential emergency generators and firewater pumps will be performed annually using the same calculation as that described for fuel gas emissions.

Calculation factors are taken from the UK National Inventory. Data for each variable will be entered manually into a calculation spreadsheet at the end of the year before entry into the online Emissions Trading Portal Annual Emissions Monitoring (AEM) report.

Boil off gas emission calculation (F3)

The calculation of emissions from the BOG will be performed offline annually using the same calculation as that described for fuel gas emissions.

The emissions factor and NCV will be the same as for F1. F3 will not normally be used as it is a fuel source to start up SCV in a black start situation and in normal operations, the line will be blanked off. If used BOG black start fuel consumption (m3 or tonnes) will be provided by PIMS and will be entered manually into the respective calculation spreadsheet at the end of the year before entry into the online Emissions Trading Portal Annual Emissions Monitoring (AEM) report.

Flared gas calculation (F1, F3)

The calculation of emissions from the flared gas will be performed offline annually using the default emissions factor and the volume of gas flared obtained using this manual, see section on Environmental Monitoring. Volumes of flare gas from this procedure will be will be entered manually into the respective calculation spread sheet at the end of the year before entry into the online Emissions Trading Portal Annual Emissions Monitoring (AEM) report.

Liquefied petroleum gases calculation (F4) and Acetylene calculation (F5)

The calculation of emissions from the temporary operational, maintenance and heating activities will be performed annually using the same calculation as that described for fuel gas emissions.

Calculation factors for F4 are taken from the UK National Inventory. Data for each variable will be entered manually into a calculation spreadsheet at the end of the year before entry into the online Emissions Trading Portal Annual Emissions Monitoring (AEM) report.

The EU ETS emissions for acetylene (F5) are calculated using the activity data and the NCV (48.2GJ/tonne) and emissions factor (3.38tCO2/tonne) that is derived stoichiometrically and is defined in the relevant regulator's guidance note, currently 'De-minimis emissions sources' as amended. The stoichiometric ratio of acetylene to carbon dioxide is based on the equation 2C2H2 + 5O2 <------> 4CO2 + 2H2O. The molar mass of acetylene is 26.04 g/mol and for carbon dioxide the molar mass is 44.01 g/mol. The ratio of acetylene molecules to carbon dioxide molecules is 1 : 2, therefore the stoichiometric ratio is 26.04 : 88.02. This means that 1 g of acetylene will produce 3.38 g of carbon dioxide. A tier 1 OxF is applied. The calculation is performed on an annual basis in the reporting spreadsheet using the formula acetylene data (tonnes) x NCV (GJ/t) x EF (tCO2/TJ) x OF.

3.17.9 Quality Assurance and Control

Regular evaluation of the Monitoring Plan's Appropriateness – in accordance with GHG permit and MMR

Regular evaluation of the Monitoring Methodology Plan's appropriateness - in accordance with Article 9(1) of the FAR

The Monitoring Plan and Monitoring Methodology Plan's appropriateness will be evaluated on a regular, routine, periodic basis (at least annually), and /or as otherwise required. The reviews will include consideration of any changes to the Terminal or monitoring processes that require changes to the Greenhouse Gas Emissions Permit, or approved Monitoring Plan (in accordance with the MMR) and/or Monitoring Methodology Plan (in accordance with the FAR) covering, in particular, any potential measures for the improvement of the respective monitoring methodologies.

Any changes to the Terminal or monitoring processes that require changes to the Greenhouse Gas Emissions Permit, or approved Monitoring Plan (in accordance with the MMR) and/ or Monitoring Methodology Plan (in accordance with the FAR) will be communicated to the NRW using the forms provided via the on-line EU ETS Emissions Trading Portal.

In addition to periodic evaluation, these and other matters of regulatory compliance will also be a material consideration in the Company's formal Management of Change (MoC) process, required in accordance with COMAH via the SHEMS System 7A Management of Change (MoC), see section on MoC below.

The data is also reviewed and validated on a regular, routine, periodic basis, as set out in the section below on 'Review and validation of data'.

Review and validation of data – MMR & MMP

Review and validation of data are in accordance with Articles 58 and 62 of the MRR.

To facilitate operator surveillance of continuous environmental monitoring systems and data, a dedicated environmental page is set up on the DCS, as described in the section of this manual on Environmental Controls. This page facilitates investigations and, if necessary, initiates appropriate corrective actions by the CCR Operator upon activation of environmental alarms. Such alarms may be an indication of high or low data, or whether any environmental meters are unavailable because of malfunction or maintenance. This review of current environmental parameters includes F1 fuel gas flow and the send out gas chromatograph.

To ensure data complete, consistent and accurate data and to evaluate of compliance with EU ETS permit conditions, the Senior Environmental Engineer will run the PIMS Environmental Report periodically to check that all required data is complete, valid and to perform QA/QC and compliance checks.

On a monthly basis, the Senior Environmental Engineer will provide actual tonnes of CO_2 emitted to the Financial Reporting and Tax Accountant. A further sense check of the monthly data is undertaken at this stage to ensure emissions levels are consistent with Terminal loads.

In addition, approved check data is also available as the daily EU ETS emissions can be derived from the quantity of exported gas (proxy). This is calculated on a daily basis in PIMS reporting using a factor derived from historical data trends. Emissions derived from this check can vary with throughput through the process, but typically, those within +/- 10% of the EU ETS emissions levels are considered acceptable; however, this can vary with send gas production.

Records of reviews are maintained by the Technical Services Department.

In addition, this procedure forms part of SHEMS , which ensures quality assurance and control by linking this procedure to other key procedures relating to internal audit, document control, and monitoring and measurement.

Quality assurance of information technology used for data flow activities

Quality assurance of information technology used for data flow activities are in accordance with Article 58 and 60 of the MRR, as described below.

The DCS and PIMS systems have been designed, documented, tested, implemented, controlled and maintained in a way to process reliable, accurate and timely data in accordance with the risks identified in the monitoring and reporting of EU ETS data and information.

Control of the information technology system is through:

- Access control using passwords.
- Regular control of back up PIMS database.
- Buffering of data within DCS to ensure recovery and continuity for PIMS.

These processes are controlled through internal systems, including the CMS Information Technology system (IT-SD-001) and SM.06D.04.000.00_ICSS Operating Manual.

Equipment failure and treatment of data gaps

Should any of the instruments or equipment referred to in this procedure fail or malfunction, SHLNG will ensure that appropriate action is taken to restore normal operation of the faulty instrument or equipment without delay/ as soon as is practicable, and that a complete record is kept of this action.

Further details are provided in the following:

- Operational Guidance on Continuous Environmental Monitoring, (available on the Lan and Operator Control Panel in the Central Control Room CCR).
- Environmental Controls section of this manual
- Environmental Reporting and Notification section of this manual
- Environmental Monitoring section of this manual
- SHLNG Fiscal Gas Metering System Maintenance Procedures (PE.06A.00.085.00).

As required by condition 10 of the EU ETS GHG Permit, NRW will be notified by the Senior Environmental Engineer as soon as possible of SHLNG becoming aware of a confirmed failure or any other confirmed factor that has prevented or may prevent compliance with the monitoring plan attached as Annex 1 to the EU ETS GHG Permit using the appropriate form available online at the EU ETS Emissions Trading Portal.

"Key pad" hold on last values and/or approved surrogate data are used in replacement of any lost data, as described in the Fuel Gas Mis-measurement Procedure SMP017 in SHLNG Fiscal Gas Metering System Maintenance Procedures (PE.06A.00.085.00). This describes the procedures for correcting fuel gas (FG) data outages of the FG metering system, including zero checks and flow computer battery changes etc. These periods of routine zero check and battery change out do not need to be notified to the NRW but, as required, will be reported separately on the Annual Emissions. Monitoring (AEM) report at no tier activity data.

During longer-term outages, (greater than 12 hours), we may, where appropriate, calculate the fuel gas tonnes/day as being the representative 1.3% (or if appropriate as calculated for the actual period of the outage) of send out gas tonnes/day and use the calculated fuel gas tonnes/day to calculate the other fuel gas determinants (Fuel gas SCM and Nm3). Fuel gas energy will also be calculated at the representative 1.3% (or if appropriate as calculated for the actual period of the outage) of the send out gas energy. Complete records of all corrected data used in the calculation of emissions are maintained to provide a transparent audit trail. These periods of longer outage will need to be notified to the NRW via the EU ETS Emissions Trading Portal reporting facility and will need to be reported as a separate item on the Annual Emissions Monitoring (AEM) report at no tier activity data.

Corrections and corrective actions

Corrections and corrective actions are handled in accordance with Articles 58 and 63 of the MRR, this procedure and the Fuel Gas Mis-measurement Procedure (including Sensor Zero Checks) SMP017 in SHLNG *Fiscal Gas Metering System Maintenance Procedure (PE.06A.00.085.00).*

Outsourced processes

Outsourced processes are controlled in accordance with Articles 59 and 64 of the MRR.

SHLNG EU ETS data flow or control activities that may be outsourced include:

- QA/QC of F1 fuel gas flow measurement systems and analysis.
- If deemed appropriate, internal review and validation of data may also be outsourced, either entirely or in part as necessary.

With regard to these processes, SHLNG will:

- Check the quality of any outsourced activities.
- Define appropriate requirements for the outputs of the outsourced processes as well as the methods used in those processes through procedures.
- Check the quality of the outputs and methods.
- The CMS procedure *Contract Management (PT-PE-002)* describes how SHLNG will ensure that all contracts are signed, administered and describe the requirements and recommended practices associated with contract administration activities within SHLNG. Contract administration focuses on the relationship between the relevant SHLNG department and the vendor from contract award

to contract closeout to ensure that the vendor delivers the goods and/or services in accordance with the purchase document requirements.

- The Contract Administrator is responsible for managing the contract and must completely understand all aspects of the contract.

3.17.10 Record Keeping and Documentation

Documentation and records management

Records are kept in accordance with information stipulated in Annex IX of the MRR.

Records of all relevant data and information relating to all aspects of this procedure will be retained for at least **10 years** following the submission of each Annual Emissions Report, in accordance with article 66 of the Monitoring and Reporting regulation. Records and documentation will also be controlled in accordance with the SHLNG Manual *Documentation and Record Management (SM.04A.01.000.00).*

This describes how South Hook will manage, control and retain the documentation needed to meet and discharge the company's legal, statutory and shareholder obligations.

3.17.11 Risk Assessment Process

Identifying and controlling risks

Assessments of inherent risks and control risks are undertaken to establish an effective control system, in accordance with Article 58 of the MRR, as outlined below.

Risk is a parameter that takes into account both, the probability of an incident and its impact. In terms of emissions monitoring, the risk refers to the probability of a misstatement (omission, misrepresentation or error) being made and its impact in terms of annual CO_2 emissions figure for SHLNG. Therefore, where probability and impact are high, the risk will be high.

The higher the risk identified by SHLNG in its assessment then the more important is the implementation of an effective control measure for mitigating that risk.

The following types of risk have been identified by SHLNG's risk assessment process conducted as part of this procedure:

- Inherent risk i.e. the susceptibility of a parameter in the SHLNG annual emissions report to misstatements that could be material before taking into consideration the effect of any related control activities.
- Control risk i.e. the susceptibility of a parameter in the SHLNG annual emissions report to be misstatements that could be material and that will not be prevented or detected and corrected on a timely basis by SHLNG control system.

SHLNG has conducted a risk assessment process for the whole data flow from the act of obtaining primary data from measurement instruments to the final Annual Emissions Monitoring (AEM) report and/ or Annual Activity Level report including, for each data source, data handling or processing step it is assessed by considering "what can go wrong". This risk assessment adopted the following seven -stage process:

1. Type of incident i.e. what can go wrong?
2. Probability i.e. how likely is it to happen?
3. Impact i.e. what would be the consequence of the incident in terms of material misrepresentation.
4. The resulting initial risk level.
5. Appropriate control activity i.e. what SHLNG will do to minimise the risk.

6. Final (residual) risk remaining when taking into account the control activity.
7. The criteria for assessment and outcomes of this risk assessment process, which will be reviewed periodically, are described in *Appendix 11 EU ETS Risk Assessment*

3.17.12 Management of Change

Responding to changes

SHLNG is a top-tier COMAH site and operates a management of change system accordingly, refer to SHEMS System 7-A Management of Change (MoC), including SHLNG *Management of Change Manual (SM.07A.01.000.00).*

SHLNG will modify the section of this manual on EU ETS Greenhouse Gas Monitoring and Reporting as necessary, including to address the following circumstances:

- Changes to accessible data allowing for higher accuracy in the determination of emissions.
- Changes to emissions sources.
- Errors detected in the monitoring methodology.
- Changes requested by the NRW.
- Improvements requested by the Verifier.
- Changes required as part of SHEMS.
- Any changes to the Terminal or monitoring processes that require changes to SHLNG's Greenhouse Gas Emissions Permit, or approved monitoring plan will be communicated to the NRW using the forms provided on the on-line EU ETS Emissions Trading Portal.
- Records of all correspondence regarding changes will be maintained and made available to the verifier.

3.17.13 Reporting

Annual Emissions Monitoring (AEM) Report

In accordance with Condition 2 of the GHG permit, the Senior Environmental Engineer is responsible for the submission of a verified Annual Emissions Monitoring (AEM) Report to the NRW by the 31st of March each year. The report will be prepared using the template on the on-line EU ETS Emissions Trading Portal (ETSWAP).

The Commercial Adviser (or, if not available, the Finance Manager) will, by the 31st of March each year, submit the previous year's verified emissions in the Registry

Annual Improvement Reports (AIR)

If required, the Senior Environmental Engineer will ensure that an Annual Improvement Report (AIR) is submitted to the NRW by 30th of June each year, in accordance with Condition 9 of the GHG permit.

Regarding Condition 8 of the GHG permit, as the highest tiers have been applied to major sources within the approved monitoring methodology it is not expected that measuring improvements will be available.

Regarding Condition 9 of the GHG permit, however, any improvements in management systems or controls that are recommended as part of the annual verification process will be included in the report. If no improvements are recommended during the verification process, SHLNG will be guided by the NRW (formally the EA/EAW) on whether the AIR report will still be required to be submitted to the on-line EU ETS Emissions Trading portal.

The Annual Improvement Report(s) will be prepared using the following NRW Template Reports:

- Annual Improvement Report Form (formally ETS5) – not usually required as our major source is already at highest tier. If required by 30 June every 2 years (as a category B installation) (Condition 8 of the GHG permit).
- Verifiers Recommended Improvement Report Form (formally ETS6). If required by 30 June of the year in which the verification report is issued (Condition 9 of the GHG permit).
- These templates and relevant guidance documents can be obtained from the on-line EU ETS Emissions Trading portal.

Annual Activity Level Report for the Monitoring Methodology Plan (MMP) and Free Allocation Regulation (FAR)

In accordance with the GHG permit and MMP, the Senior Environmental Engineer is responsible for the submission of a verified Annual Activity Level Report to the NRW by the 31st of March each year. The Annual Activity Level Report will be prepared using the appropriate final UK version of the Annual Activity Level reporting template and be submitted via the Emissions Trading Portal (ETSWAP), as required by NRW.

Failure to monitor in accordance with the Monitoring and Reporting Regulation and the monitoring plan

SHLNG is required by Condition 1 of the GHG permit to monitor in accordance with the Monitoring and Reporting Regulation and the monitoring plan (including the written procedures supplementing that plan).

In accordance with Condition 10 of the GHG permit, the Senior Environmental Engineer will ensure that the NRW is notified using the on-line EU ETS Emissions Trading Portal report, in accordance with the Monitoring and Reporting Regulation, at least 14 days prior to commencement of any of the following circumstances, or where this is not practicable, as soon as possible thereafter:

a) Where there is a temporary change to its monitoring methodology as specified in Article 23.
b) Where tier thresholds are exceeded or equipment is found not to conform to requirements which require corrective action as specified in Article 28(1).
c) Where a piece of measurement equipment is out of operation as specified in Article 45.
d) Where an installation with low emissions exceeds the relevant threshold as specified in Article 47(8).

Note: *Notification must include details of the factor, and the reasons why compliance has been or may be prevented. Where the non-compliance is in respect of the required monitoring and reporting methodology, the notification must include the following information to satisfy the Regulator:*

- *Details of the interim monitoring and reporting methodology adopted by SHLNG.*
- *Proof of the necessity for a change to the monitoring and reporting methodology.*
- *Details of the measures that have been or will be taken to enable a prompt restoration of compliance.*

Capacity Reduction Report

As required by condition 11 of the GHG permit, the Senior Environmental Engineer will ensure that the NRW is notified using the on-line EU ETS Emissions Trading Portal when a significant reduction in capacity occurs. This capacity will be capacity of the SCV units in TJ. This notification must be made either within 7 months of the capacity change occurring or by 31 December in the year of the change, whichever is the later date.

The notification should include the following:

a) A statement of the reduced capacity and the installed capacity after the change.

b) A statement that the data under paragraph (a) have been verified.

A reduction in capacity is considered significant if:

- One or more physical changes led to a decrease in capacity of at least 10% or,
- One or more physical changes led to a decrease in allocation to the sub-installation of more than 50 000 allowances and the difference represents more than 5% of the amount of allowances calculated irrespective of the physical change.

Note: *The common feature of both cases above is the fact that a 'physical change' needs to be made to the installation.*

The partial cessation spreadsheet units are optional so TJ can be used and this corresponds to the base line periods that used TJ.

Activity Level Change (ALC) Report (qualifying partial cessation)

The Commission Decision on Free Allocation partial cessation rule, set out in Article 23 of the Decision requires that where activity levels, that is to say energy use in the NCV (TJ), are reduced by at least 50% compared to the activity levels used as basis for the allocation, then a proportion of the SHLNG free allocation will be withheld the year following the year in which the activity levels were reduced. This requirement in the EU Decision is transposed in to UK Greenhouse Gas Regulation and is detailed in Schedule 6 paragraph 8.

In accordance with Condition 12 of the GHG permit, the Senior Environmental Engineer will ensure that the NRW is notified, using the on-line EU ETS Emissions Trading Portal report, of any qualifying partial cessation (i.e. qualifying activity level change) by the 31st December each year or one month after the date it took effect, whichever is the later.

The report must state the amount of the reduction and the sub-installation to which it applies.

The partial cessation spreadsheet units are optional so TJ can be used and this corresponds to the base line periods that used TJ.

Reporting planned or effective changes to capacity, activity level or operation

In accordance with Condition 14 of the GHG permit, the Senior Environmental Engineer will ensure that NRW is notified using the on-line EU ETS Emissions Trading Portal report of any planned or effective changes to the capacity, activity level or operation of the installation by 31 December in the year in which the change was planned or has occurred, unless already notified in accordance with other requirements of the GHG permit.

Applying for permit variations

In accordance with Condition 5 of the GHG permit, if it is proposed to make a significant modification to the monitoring plan under Article 15, the Senior Environmental Engineer will ensure that an application is made to the regulator for a variation of the GHG permit at least 14 days prior to making the change or, where this is not practicable, as soon as possible thereafter. The application must include a description of the change and describe how it affects the information contained in the monitoring plan.

Notifying the Regulator of non-significant modifications to monitoring plan

In accordance with Condition 6 of the GHG permit, if a non-significant change is made to the monitoring plan under Article 14 or 58(4), the Senior Environmental Engineer will ensure that the regulator is notified by 31 December in the year in which the change occurred. Any such notification must include a description of the change, describe how it affects the information contained in the monitoring plan; and explain how the change is in accordance with the Monitoring and Reporting Regulation.

Applying for permit variation to change Operator name

In accordance with Condition 7 of the GHG permit, where the name of the operator changes, the Senior Environmental Engineer will ensure that an application is made to the regulator for a variation of the GHG permit in order to reflect the change as soon as practicable following the change.

3.17.14 Verification

Independent body accredited by UKAS

The Annual Emissions Report will be verified by an independent body accredited by the United Kingdom Accreditation Service (UKAS) prior to submission to the NRW. Verification will include an assessment of the monitoring methods, information, data and calculations used to compile the report.

The Senior Environmental Engineer hosts the verification process to ensure that emissions reported are verified as correct. The annual verification audit will be scheduled as early as possible to ensure that the verified report is submitted by March 31st each year.

Prior to verification, the Senior Environmental Engineer will prepare a verification pack containing the following information, as a minimum:

- SHLNG's Greenhouse Gas Emissions Permit for the Terminal.
- Monitoring Plan including details of emission factors, CVs and activity data used to calculate emissions.
- Annual Emissions Report, which when completed, will form part of the Verification Opinion Statement.
- Monitoring Methodology Plan (MMP)
- Annual Activity Level Report for the Monitoring Methodology Plan (MMP) and Free Allocation Regulation (FAR)
- Procedures for data collection, handling, transfer, and error checking, where available.
- QA/QC procedures.
- Plan of the Terminal indicating energy flows, emission sources and location of fuel meters.
- Production and output records, where available and if requested by the verifier.
- Energy records, including copies of fuel meter readings (where available) and invoices for energy streams.
- Meter calibration records and any specific requirements of the Monitoring Plan.
- Meter readings, calculations and justifications for any other energy flow into and out of the facility.
- Evidence of notification and agreement of any adjustments to data; for example, due to variations in gas calorific values and estimated meter readings.
- A copy of the methods used to calculate emissions.
- Any information relating to specific discussions with the regulator or Government, and reasons for any changes made to monitoring and reporting.
- Details of any variations made to the Permit or Monitoring Plan approved by the regulator.
- Details of any downtime or meter failures and subsequent remedial action.

The verification pack will be provided electronically and include any additional information that may be requested by the verifier.

3.17.15 Year-end Steps

Proposal of reportable emissions

Year-end steps are conducted as described in the SHLNG EU Emissions Trading Scheme requirements.

The Commercial Adviser (or, if not available, the Finance Manager) will propose the reportable emissions in the EU Registry and shall ensure that this figure is verified by the EU ETS Verifier in the Registry by 31st March each year.

In accordance with Condition 4 of the GHG permit, the Commercial and Regulatory Affairs Adviser (or, if not available, the Finance Manager) will by 30 April in each year, surrender a number of allowances in the Registry equal to the annual reportable emissions of the installation made in the previous year; and ensure and check that the SHLNG Registry account has complied each year.

3.18 Groundwater Monitoring from Boreholes and Natural Springs

Purpose

The purpose of this section is to describe how SHLNG will ensure that the quality of groundwater is monitored in accordance with the Environmental Management System and in a safe and effective manner.

3.18.1 Additional Responsibilities

Senior Environmental Engineer

The Senior Environmental Engineer will be responsible for the following:

- Reviewing methodologies and safe working practices for monitoring by specialist contractors, and overseeing their monitoring activities.
- Obtaining monitoring data and reports from specialist contractors.

Environmental Services/ Laboratory Contractor

The Environmental Services/ Laboratory Contractor will be responsible for reporting results to SHLNG

3.18.2 Groundwater Monitoring

Sampling Programme

SHLNG is required to sample groundwater via boreholes located across site in accordance with Site Lease and EPR Environmental Permit requirements. The scope of works is detailed in the relevant contractual documentation with and review reports provided by the SHLNG Environmental Services Contractor. All works are undertaken in accordance with SHLNG safe systems of work, including PTW and site rules. The current monitoring programme is summarised in the Table 24 below. The locations of the boreholes are illustrated in Appendix 15 Monitoring Borehole and Spring Locations.

BASELINE MONITORING		SUPPLEMENTARY SITE LEASE MONITORING Full Round (to be undertaken in June) (frequency to be confirmed)
June (Summer) Monitoring Round	December (Winter) Monitoring Round	
6-Monthly Sampling Locations		
BH18	BH18	BH18
BH40a	BH40a	BH40a
BH61a	BH61a	BH61a
Annual Product Level Monitoring		
BH42a	-	-
Annual Sample Locations		
BH45b	-	BH45b
BH41a	-	BH41a*
BH43	-	BH43*
BH44	-	BH44
BH06 ***or*** BH34b	BH06 or BH34b	BH06 & BH34b*
MW01	-	MW01*
BH53	-	BH53
BH20	-	BH20
-	BH50	BH50
-	BH47a	BH47a
-	BH26	BH26
	Additional Locations for Supplementary Site Lease Monitoring - Full Round	
-	-	BH30a
-	-	BH63a
-	-	MW03*
-	-	BHG2b
-	-	BH42a*
-	-	BH22
-	-	BH27a
-	-	BH59
-	-	BH55
-	-	BH36b
-	-	BH49
-	-	BH65
-	-	BH60b
-	-	BH19
-	-	BH01

** Locations to be analysed for DRO, GRO and SVOCs (all remaining locations analysed for DRO and GRO)*

*Analysis for pH is included as a standard analysis for all groundwater and spring water samples taken

Table 24. Borehole Sampling Programme

Sampling equipment and requirements

Environmental Services/ Laboratory Contractor

The Environmental Services/ Laboratory Contractor will provide the necessary bottles, vials and packaging equipment. The Laboratory Contractor must follow current industry best practice and guidance, including BS ISO 5677-11:2009 Water Quality sampling: *Guidance on Sampling of Groundwater.*

3.18.3 Natural Spring Monitoring

Natural spring monitoring is undertaken yearly on Spring 6. The location of the spring is the top of the Littlewick beach foreshore, illustrated in Appendix 15 Monitoring Borehole and Spring Locations.

IED Soil and Groundwater Monitoring Programmes

Detailed soil and groundwater monitoring programmes were developed to ensure compliance with Condition 3.1.3 of the EPR Environmental Permit No. EPR/XP3538LD. This condition implements the requirements of the IED for the SHLNG Terminal permitted installation and meets the requirements of relevant guidance

The SPMP is maintained and groundwater & land quality of the permitted installation are maintained and assessed via periodic production of a Site Condition Report (SCR)/ Baseline Report for Industrial Emissions Directive (IED), in compliance with the requirements of EPR Environmental Permit, including condition 3.1.3.

Further details are presented in the Site Condition Report (SCR)/ Baseline Report for Industrial Emissions Directive (IED), submitted to NRW in compliance with EPR Environmental Permit, Permit Number EPR/ XP3538LD. Also see the sections of this manual on SPMP and Environmental monitoring section on SPMP and Site Condition Report (SCR).

3.19 Site Closure Plan

Purpose

The purpose of this section is as follows:

- To describe SHLNG's high-level plans to reduce the environmental impact of any future decommissioning activities.
- To fulfil the requirements of the EPR Environmental Permit and submitted Planning Application by ensuring that:
  - In the event of the Terminal closing, the site will be decommissioned such that the risk of pollution and the generation of waste is prevented or minimised.
  - A decommissioning plan is submitted to and approved by the Local Planning Authority before decommissioning commences.
  - The land occupied by the Terminal is restored as stated in the approved decommissioning plan to the agreed timetable.

3.19.1 Additional Responsibilities

Technical Services Manager

The Technical Services Manager will be responsible for the following:

- Liaising with all relevant parties to develop a decommissioning plan for the approval of the General Manager and subsequent submission to the Local Planning Authority, in the event of the need to decommission the Terminal.
- Ensuring that no decommissioning activities commence without the prior approval of the Local Planning Authority.
- Ensuring that in the event of the need to decommission the Terminal, all decommissioning activities are performed in accordance with this procedure

Senior Environmental Engineer

The Senior Environmental Engineer will be responsible for the following:

- Monitoring laws and regulations to identify any new requirements or any changes to existing requirements that may affect SHLNG's provisions for the decommissioning of the Terminal, and notifying the Technical Services Manager accordingly.

3.19.2 Site Facilities

Buildings, tanks and plant

Constructed facilities at the Terminal include the following:

- Refurbished and strengthened jetty.
- Reinforced concrete tanks lined with inner metal tanks.
- Pipelines, pumps, compressors, and instrumentation to regasify LNG for send out.
- Above ground facilities to provide firewater, instrument air, nitrogen, incoming power, and surface water drainage, etc.
- Underground facilities to provide services such as power, water, instrument cabling, interceptors, cesspools and effluent removal.

- Security Gatehouse, Administration Building, Workshop, Warehouse, Jetty Gatehouse, Jetty Control Building, Central Control Building, and several sub-stations.

3.19.3 Regulatory and other Requirements

Restoration of soil and groundwater conditions

In accordance with SHLNG's EPR Environmental Permit, SHLNG produced an Application Site Report to describe the initial baseline conditions of the site on commencement of the permitted operations. Full details of this survey are provided in the SHLNG Application Site Report filedon the LAN.

The EPR Environmental Permit requires that, following decommissioning, soil and groundwater conditions must be restored to the conditions prevailing at the time of the baseline survey, and any damage to soil or groundwater caused during operations or decommissioning must be rectified.

In accordance with the EPR Environmental Permit, SHLNG also produced a Site Protection and Monitoring Programme (SPMP), full details of which are provided in the SHLNG Site Protection and Monitoring Programme Report filedon the Lan. The report details the testing, inspection and maintenance programme for pollution prevention infrastructure at the site (Infrastructure Monitoring Programme), which is implemented by means of various procedures outlined, including the following:

- Environmental Controls and Environmental Monthly Inspections Checklist, stored on the LAN.
- System 6-A Operational Surveillance Routines (PE.06A.00.131.00) & 6-B (Work Management) and associated forms.
- The Site Condition Report (SCR)/ Baseline Report for Industrial Emissions Directive (IED), submitted to NRW in compliance with EPR Environmental Permit, Permit Number EPR/ XP3538LD

SHLNG also has obligations as part of the Site Lease Agreement to protect the site and its ecology, and comply with certain provisions when relinquishing the lease.

SHLNG is committed to complying with any new regulations relating to any decommissioning activities that may arise, and which are current at that time

3.19.4 Principles

Decommissioning activities

Although it is not possible to define exactly how decommissioning will take place, the following principles will form the basis of SHLNG's decommissioning activities:

- Agree the decommissioning scheme with all relevant authorities (Local Planning Authority and Natural Resources Wales etc.).
- Comply with all applicable laws, regulations, permits and agreements.
- Appoint a decommissioning Lead with access to relevant expert advice.
- Refer to historical records for the Terminal including; plant construction, incidents, spills, underground facilities and utilities, site baseline survey, Site Lease Agreement, planning consent conditions, and the Construction, Design & Management Regulations Health and Safety records.
- Prepare the facilities to minimise the potential for environmental impact during decommissioning, for example, gas-freeing, removal of oils and chemicals, etc.
- Review existing site operational procedures at the time of site closure to assess their relevance to subsequent decommissioning activities.
- Apply the principles of waste hierarchy, as far as practicable, to facilitate the re-use of existing facilities, recover and re-use, or recycling of materials, and minimise offsite disposal and landfill, in accordance with current regulation.
- Retain facilities necessary for the maintenance of the site, such as drainage and effluent facilities etc., and any facilities likely to be of use to future occupiers, such as incoming utilities.

3.19.5 Preparation for Decommissioning

Draining and emptying equipment, plant and cesspools

The vast majority of the LNG at the Terminal will be processed prior to plant shutdown. In the final stages of shutting down of the plant, any small amounts of LNG that cannot be supplied to the National Grid will be flared in preference to releasing any gas to atmosphere.

Bulk quantities of potable water and firewater tanks at the Terminal will be discharged to the Milford Haven waterway under existing effluent consents.

Small quantities of diesel fuel and caustic held in bunded tanks at the Terminal will be transferred to road tankers for re-use or recycling offsite. Unused oils and greases held in the bunded store will be returned to suppliers, or sent for re-use or recycling.

Equipment, such as compressors and pumps, will be drained of oils and fluids and these will be sent offsite for re-use or recycling, in accordance with current regulations.

Transformer oils and sulphur hexafluoride will be recovered from electrical substation transformers and re-used or recycled in accordance with current regulations.

Cesspools will be checked and left empty.

Air-drying facilities containing molecular sieve agents will be removed and sent offsite for re-use, or disposal if recycling is not practicable at the time of decommissioning.

Refrigerants used in building HVAC systems will be collected and recycled or disposed of in accordance with current regulations

3.19.6 Demolition of Plant Structures

Tanks

The tank inner shells, made of 9% nickel steel, will be cut and re-used or recycled. The reinforced concrete outer walls will be crushed to enable reinforcing bars to be recovered, and the crushed material and bars re-used or recycled in accordance with current regulations.

The perlite insulation that fills the void between inner shells and outer walls is re-usable, but an environmental/economic assessment would need to be performed at the time of decommissioning to determine the optimum disposal method.

Process facilities

Processing facilities are primarily of stainless steel or carbon steel construction and are readily re-usable or recyclable. Most reinforced concrete structures can be crushed and the material re-used

Most materials used for ancillary equipment such as instrumentation, fixtures and fittings can be re-used or recycled.

Piping

A significant quantity of piping is used at the Terminal, most of which is made of stainless steel or conventional carbon steel and can therefore be re-used or recycled. Other pipework made of glass-reinforced plastic can potentially be re-used but is not currently recyclable

Marine structures

SHLNG is not responsible for the decommissioning of the jetty's main structure, as this is the property of the Landlord. SHLNG is, however, responsible for the decommissioning of the topside equipment, which will be managed in a similar manner to the facilities described above

Buildings

Buildings at the Terminal are constructed of bricks-and-mortar, or are steel-framed with sheet metal cladding. On decommissioning, the preferences of the Landlord and any prospective purchasers of the site will be considered before plans are submitted to the relevant authorities describing the decommissioning of any building, including sub-stations and control rooms.

Underground facilities

Underground facilities that are required to maintain the environmental integrity of the site will be retained; especially drainage channels, interceptors, and effluent lines.

Decisions regarding disposal of power, sewerage, instrumentation and telecommunications cabling, which may be of value to future developers, will be made at the time, and agreed with the relevant authorities.

Above ground features

Certain above ground topographical features, such as screening bunds and tank containment bunds, may be deemed beneficial to the environmental integrity of the site or to future developers. Decisions regarding the disposal of these features will therefore be made at the time, and agreed with the relevant authorities.

3.19.7 Records

Records management

SHLNG will maintain all records relating to the construction and operation of the Terminal throughout its ownership of the Terminal including; plant design details, records of underground facilities, incidents and spills, as outlined in SHEMS system 4-A Documentation and Information Management

3.20 Application Site Report (ASR) & Site Condition Report (SCR)

Record of the initial condition of the site

Under the provisions of the Pollution Prevention and Control Regulations 2000, SHLNG is required to submit an application to Natural Resources Wales (NRW) for a permit to operate the new process / installation. As part of the permit application, a site report is required to describe the initial conditions of the site.

This Application Site Report was required for the purpose of the company's EPR Environmental Permit application. This baseline site report has been compiled in accordance with the NRW publication: IPPC H7 Guidance on the Protection of Land under the PPC Regime: Application Site Report.

The Application Site Report (ASR) is filed on the LAN and is succeeded by the Site Condition Report (SCR), developed and maintained in accordance with:

i. *'H5 Site Condition Report Guidance and Template' version 5, NRW dated October 2014*
ii. *EU Guidance on Baseline Monitoring IED - 2014/C136/03 dated 6 May 2014*

Objectives

The objectives of the ASR/ SCR are as follows:

- To identify the environmental setting and land pollution history of the site.
- To identify activities that will be conducted at the installation that may lead to land pollution.
- To identity and assess the preventative measures that are in place to protect the land; assessing whether there is little likelihood that land pollution or leaks to land will occur during the future life of the installation, or there is a reasonable possibility that there is potential for current or future land pollution of the land from the installation.
- Incorporate the EPR Environmental Permit soil and groundwater monitoring, review, demonstrate and confirm/ or otherwise that the risk assessments used to support the SHLNG baseline report for the original PPC permit application remain valid
- To be sufficient to form the basis of any required further work to establish reference conditions.

File location

The issued Application Site Report is filedon the LAN.

Site Condition Report (SCR)/ Baseline Report for Industrial Emissions Directive (IED)

The SPMP is maintained and groundwater & land quality of the permitted installation are maintained and assessed via periodic production of a Site Condition Report (SCR)/ Baseline Report for Industrial Emissions Directive (IED), in compliance with the requirements of EPR Environmental Permit, including condition 3.1.3.

Further details are presented in the Site Condition Report (SCR)/ Baseline Report for Industrial Emissions Directive (IED), submitted to NRW in compliance with EPR Environmental Permit, Permit Number EPR/ XP3538LD. Also see the sections of this manual on SPMP and Environmental monitoring section on SPMP and Site Condition Report (SCR).

3.21 Environmental Reporting and Notification

Purpose

The purpose of this section is to describe the mechanisms by which SHLNG implements statutory environmental reporting and notification requirements

3.21.1 Additional Responsibilities

SHLNG Site Lease Representative

The SHLNG Site Lease Representative will be responsible for making notifications, serving notices, providing information, as required by the Site Lease and highlighted within this procedure.

Technical Services Manager

The Technical Services Manager is responsible for the following:

- Ensuring SHLNG's compliance with permitted notification and reporting obligations.
- Ensuring notification of Natural Resources Wales (NRW) of notifiable incidents, without delay.
- The Technical Services Manager or delegate is responsible for peer review of the emissions monitoring reports, and other reports as necessary, prior to their submission by the Senior Environmental Engineer to NRW.

Senior Environmental Engineer

The Senior Environmental Engineer is responsible for the following:

- Preparation of reports and provision to the relevant authorities, to statuary deadlines.
- Notifying the Technical Services Manager of notifiable incidents, without delay, and if requested by Technical Services Manager the Natural Resources Wales (NRW).
- Notifying NRW and the SHLNG Site Lease Representative of any changes in site conditions.
- Notifying NRW of any cessation or change in operation 14 days prior to the intended date of implementation of change.
- Compiling biannual and annual monitoring reports and submission to NRW within 28 days of period end.
- Compiling energy consumption, performance and improvement reports and submission to NRW, annually for every calendar year by the 28 January of the following year.
- Compiling reports and submission to the Pollution Release and Transfer Register (PRTR) and the National Atmospheric Emissions Inventory (NAEI), annually for every calendar year by the 31st March of the following year, until further notice is given by the NRW.

Laboratory Monitoring Contractor

The Laboratory Emission Monitoring Contractor is responsible for the following:

- Notifying the Senior Environmental Engineer, verbally and via e-mail, without delay, of any failure to undertake contractual obligations for emissions monitoring as, as set out in the contract and required by the EPR Environmental Permit to operate and the SHLNG Operational Guidance on Continuous Environmental Monitoring, (available on the LAN and Operator Control Panel in the Central Control Room CCR).
- Entering data into Exaquantum database and providing monitoring certificates to SHLNG in accordance with agreed process and timescales.

- Notifying the Process Supervisor (verbally and via high importance red-flagged e-mail, copied to the Senior Environmental Engineer), without delay, on any breaches of emission limit values (ELVs) or other trigger-action alarms set by SHLNG, as described:
  - Environmental Monitoring section of this manual
  - Environmental Controls Procedure section of this manual

Maintenance Superintendent

- The Maintenance Superintendent is responsible for notifying the Process Supervisor without delay, and in accordance with the sections of this manual on Environmental Monitoring and Environmental Controls, should any statutory meters or any environmental monitoring data not be available for any reason (for example, because of meter malfunction or maintenance).
- The Maintenance Superintendent is responsible for ensuring that all statutory environmental analysers/meters should be returned to service as soon as possible. Variable restoration time with target of 'as soon as reasonably practicable', ideally within 24, 48, 72 or >72 hours. Refer to NRW's Operator Monitoring Assessment (OMA) Guidance and the SHLNG list of statutory environmental meters (stored in the LAN).

Process Superintendent

- The Process Superintendent or delegate is responsible for peer review of the emissions monitoring reports, and other reports as necessary, prior to their submission by the Senior Environmental Engineer to NRW.

Process Supervisor

The Process Supervisor is responsible for the following:

- Leading and managing incident response with advice and support from the Technical Services Department, in accordance with site chain of command.
- Notifying and reporting all incidents to the Technical Services Department (Senior Environmental Engineer, or the Technical Services Manager), including:
  - Any breaches of ELVs or alarms.
  - Whether any statutory environmental meters or any environmental monitoring data are not available for any reason; for example, because of meter malfunction or maintenance.
  - Performing the actions assigned in the SHLNG Operational Guidance on Continuous Environmental Monitoring, and the sections of this manual on Environmental Monitoring and Environmental Controls.

Process Operators

- Process operators are responsible for informing the Process Supervisor without delay of any breaches of ELVs, alarms, or if any statutory meters or any environmental monitoring data are not available for any reason (for example, because of meter malfunction or maintenance), as described in the sections of this manual on Environmental Monitoring and Environmental Controls.

3.21.2 Contacting Natural Resources Wales

NRW contact details

All communications with NRW should include the following reference numbers:

- EPR Environmental Permit Number – EPR/XP3535LD

Contact details for SHLNG's principal single point of contact at NRW, in respect of the EPR Environmental Permit, are provided in the Table 25 below:

Name and Address	Contact Details
Mrs Karen Dunn Senior Officer – Industry and Waste Regulation South West Wales Industry Regulation Team Natural Resources Wales Maes Newydd, Llandarcy, Neath Port Talbot SA10 6JQ www.naturalresourceswales.gov.uk	Tel: 03000 65 3232 E-mail: karen.dunn@naturalresourceswales.gov.uk
All electronic correspondence relating to permit conditions or notifiable incidents to be submitted to the NRW South West Wales Industry Regulation Team e-mail address:	E-mail: industryregulation.swwales@naturalresourceswales.gov.uk and icc@naturalresourceswales.gov.uk

Table 25. Principle Single Point Contact with Natural Resources Wales

3.21.3 Reporting of Emissions Monitoring

The Senior Environmental Engineer or delegate shall undertake the following EPR Environmental Permit requirements:

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.

Schedule 4 – Reporting (from the EPR Environmental Permit)

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 – A8 A11 – A17	Every 12 months	1st January
Emissions to water Parameters as required by condition 3.5.1	W1, W2	Every 6 months	1st January, 1st July

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^3
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

In accordance with the EPR Environmental Permit (Condition 4.2), unless otherwise agreed in writing and stated within this procedure, SHLNG will submit reports of monitoring and assessment conducted under the EPR Environmental Permit as follows:

The Senior Environmental Engineer will produce the emissions. This includes running the Environmental Report spreadsheet, which interrogates the Plant Information Management System (PIMS) Exaquantum database. The Senior Environmental Engineer will be responsible for final review of the monitoring data and collation of the emissions reports.

Following review by the Process Superintendent, or delegate, the emissions monitoring reports will be issued by the Senior Environmental Engineer to NRW by the 28th day of the relevant month.

Reports will be submitted to NRW to provide results of emissions monitoring conducted for the parameters specified in the EPR Environmental Permit, including Schedule 4 – Reporting (from the EPR Environmental Permit)

Electronic submission of notifiable incidents and reports to NRW

NRW has requested that SHLNG submit only electronic reports of its monitoring returns from January 2011.

All electronic correspondence relating to permit conditions, including returns submitted electronically in compliance with permit conditions, or details of notifiable incidents, must be submitted to the PPC team at the following e-mail address:

industryregulation.swwales@naturalresourceswales.gov.uk

Reporting on fugitive emissions, flaring and venting

The Engineering Technician is responsible for performing the necessary estimation of mass of methane vented from the installation to air and providing this data and the required supporting information to the Senior Environmental Engineer to the agreed timescales (within 12 hours of NRW having been notified).

In addition, the Process Supervisor notifies the Senior Environmental engineer of all flaring and venting events, as described in the SHLNG Operational Guidance on Continuous Environmental Monitoring (available on the LAN and Operator Control Panel in the Central Control Room CCR), and the sections of this manual on Environmental Monitoring and Environmental Controls. Fugitive, flaring and venting episodes may need to be notified NRW without delay, (EPR Environmental Permit – Condition 4.3.1), and therefore, prompt internal reporting to line management by all SHLNG personnel involved is essential.

OPRA - Operator Risk Appraisal scheme for installations

Using the current template on the NRW web site, the Senior Environmental Engineer will complete and send the completed Operational Risk Appraisal (OPRA) spreadsheet to NRW by 28 February each year, or otherwise as deemed practicable.

Pollution Release and Transfer Register (PRTR) and the National Atmospheric Emissions Inventory (NAEI)

In accordance with the Environmental Permitting (England and Wales) Regulations 2016 Regulation 61(1) Notice, SHLNG will submit a return to the European Environment Agency for the European Pollution Release and Transfer Register (E-PRTR) and to DEFRA for the UK Pollutant Release and Transfer Register (UK-PRTR) and the National Atmospheric Emissions Inventory (NAEI) by 31 March each year for the previous calendar year being reported.

The Senior Environmental Engineer is responsible for collating the required data and compiling the submission to the Pollution Release and Transfer Register (PRTR) and the National Atmospheric Emissions Inventory (NAEI), annually for every calendar year by the 31st March of the following year, until further notice is given by the NRW. The data is submitted via electronic return using the NRW Electronic Data Capture system URL.

Reporting on soil and groundwater conditions

In accordance with Schedule 5 – 12.4 of the Site Lease Agreement, the SHLNG Site Lease Representative or delegate will submit reports providing results of monitoring conducted under the Monitoring Plan to the Landlord.

Monitoring and reporting is conducted as described in the section of this manual on Groundwater Monitoring, which is administered as agreed with NRW and the SHLNG Site Lease Representative.

3.21.4 Notification Requirements

External complaints handling

External complaints and calls received from Environmental Regulatory Authorities will be handled and reported in accordance with the SHLNG External Complaints Handling section of System 10-A, Emergency Preparedness & Community Awareness.

Internal notification and reporting of environmental incidents

This section applies to the internal notification and reporting of all environmental incidents, including ELV breaches, fugitive emissions, flaring and venting episodes, plant failure and any accident with environmental consequences.

The System 9-A Incident Management Manual (SM.09A.01.000.00) defines environmental incidents as follows:

"*Any unauthorised discharge of poisonous, noxious or polluting matter to land, clean drains or direct to waters; or any authorised release that breaches permitted limits.*

Any unauthorised releases of gas to atmosphere or any authorised release that breaches permitted limits.

Any loss of control or containment of waste or any damage to a protected habitat."

As described in the section of this manual on Environmental Monitoring, the Environmental Screen in the DCS provides real time operational oversight and control and contains relevant alarms set as described in the section of this manual on Environmental Controls. This is supported by automatic generation and circulation of routine reports to key personnel, including:

- Environmental CEMS Screen Daily Report.
- QAL 3 Report (NOx analysers zero and span calibration checks).
- PSPI daily report

In the event of CEMS analyser failure or bad data, or high CEMS/DCM readings (exceeding alarm limits), operations and maintenance personnel should respond by taking the actions described in the SHLNG Operational Guidance on Continuous Environmental Monitoring, available in the DCS and the section of this Manual on Environmental Controls.

For emissions to air, invalid hours and invalid days are calculated automatically in the DCS and displayed on the environmental screen in the CCR control panel display. Upon receipt of notification by Process Supervisor, the Senior Environmental Engineer validates the CEMS invalid hours/ days. The Senior Environmental Engineer will report to the Process Superintendent and the Technical Services Manager within 24 hours of finding more than 10 invalidated days in any year of operation, in accordance with the section of this Manual on Environmental Monitoring.

Environmental incident categories

The categorisation scheme described in the Table 26 below will be used to take into consideration the nature of the hazardous properties, scale (extent) and persistence of the materials involved in the incident.

Incident Category	Description of Significance or Impact	Description
Category 1	High significance or impact (MAJOR)	Non-compliance with ELV or permit condition including failure to monitor continuously, and/or significant adverse environmental impact/ pollution.
Category 2	Medium significance/impact (MODERATE)	Potential to breach emission limit. Contaminant entered surface-water drainage system, land (unpaved ground) and/or groundwater. Only moderate adverse environmental impact.
Category 3	Low significance or impact (MINOR)	Contaminant did not enter surface-water drainage system, land (unpaved ground) and/or groundwater, or if it did not in appreciable quantities. Contaminant contained local to source. Only minor/localised adverse environmental impact.
Category 4	No significance or impact (i.e. housekeeping scale incidents) (NO IMPACT)	Smaller scale contained incidents (as for Category 3 but smaller scale. No adverse environmental impact).
Category 5	Near miss	Any incident that did not, but in different circumstances had the potential to, give rise to an Environmental Incident (Category 1 to 4 above).

Table 26. Environmental Incident Categories

In accordance with the System 9-A Incident Management Manual (SM.09A.01.000.00), all personnel are responsible for reporting environmental incidents and environmental near misses to the Process Supervisor without delay. Emergencies must be reported 24/7 to the CCR on Extension 2222, and the Process Supervisor notified without delay.

The Process Supervisor must report the occurrence of any of the incident scenarios below without delay during normal office hours, or if occurring outside normal office hours at the start of the next working weekday, to the Senior Environmental Engineer, or, if unavailable, the Technical Services Manager, or delegate.

Typical incident scenarios are as follows:

- If there is a failure to measure continuously or ELV is exceeded, as this is a breach and must be reported to NRW.
- If alarms are exceeded, as described in the section of this manual on Environmental Controls.
- If flaring is confirmed, telephone the Technical Services Department and PR Department, as this may be a public relations and regulatory issue.
- Loss, or <BAD> quality, of fiscal metering data, such as the send out gas chromatograph data and or SCV Fuel Gas Flow
- If high fuel-gas density or low-flow / no-flow incidents confirmed, as this is a GHG permit/ regulatory compliance issue.

Contact telephone numbers are provided via SHLNG's emergency response. Key numbers are provided in Appendix 6.

Calls to the Technical Services Department out of hours should only be made in exceptional circumstances, for example in relation to a major emergency incident, via SHLNG's emergency response, or if the Operations Department requires immediate support and/or assistance.

The Process Supervisor will record incident details in the Shift Turnover Log and provide updates at Daily Operations Meetings including, the time of failure, cause, plan to rectify, anticipated restoration time and date, on-going progress against remedial action plan, and the time CEMS returned to service.

Reporting will normally be made via telephone and the electronic Safety, Health and Environmental (SHE) Reporting System, which must be submitted (to the Technical Services Department) as soon as practicable.

If the SHLNG e-mail system is unavailable, a written internal incident report must be physically handed to a member of the Technical Services Department, in accordance with the relevant SHLNG Business Continuity Plan, as soon as possible.

All such events are internally notified, investigated and reported in accordance with the SHEMS 9-A Incident Management.

In accordance with site chain of command, the Process Supervisors will lead and manage incident response with advice and support from the Technical Services Department, as required. This can be delegated to the lead department, as required

External notification and reporting of environmental incidents

This section applies to the external notification and reporting of all environmental incidents including ELV and permit condition breaches, fugitive emissions, flaring and venting episodes, plant failure or accident with environmental consequences.

External notification and reporting of environmental incidents shall be handled in accordance with the SHLNG Manual *Incident Management (SM.09A.01.000.00).*

In accordance with the EPR Environmental Permit the Technical Services Manager or delegate shall ensure;

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.

NRW should be notified without delay via a telephone call to the Regional Communications Centre for the **NRW Incident Hotline on the following telephone number: 0300 065 3000.**

NRW should only be contacted following approval, as appropriate, from the General Manager and/or the SHLNG Site Main Controller or direct delegate.

The Technical Services Manager, or delegate, is responsible for ensuring immediate notification of notifiable incidents, external notification and reporting to Natural Resources Wales (NRW.)

The Technical Services Manager will ensure that verbal notification to NRW is followed up by immediate written confirmation, by completing Part A of Schedule 5 Notification form (to the EPR Environmental Permit) and e-mailing the completed form to NRW and recipients listed in the table below.

As soon as practicable, the Technical Services Manager or delegate will complete Part B of the Schedule 5 Notification form (to the EPR Environmental Permit) and e-mail the completed form to NRW and recipients listed in the table below:

Recipient	E-mail Address
Natural Resources Wales (NRW)	industryregulation.swwales@naturalresourceswales.gov.uk
NRW Incident Communication Centre	icc@naturalresourceswales.gov.uk
Mrs Karen Dunn (NRW)	E-mail: karen.dunn@naturalresourceswales.gov.uk
Shane Evans (SHLNG)	sevans@southhooklng.com

The process for determining responsibility and notifying and reporting to NRW is illustrated in the Figure 8 below.

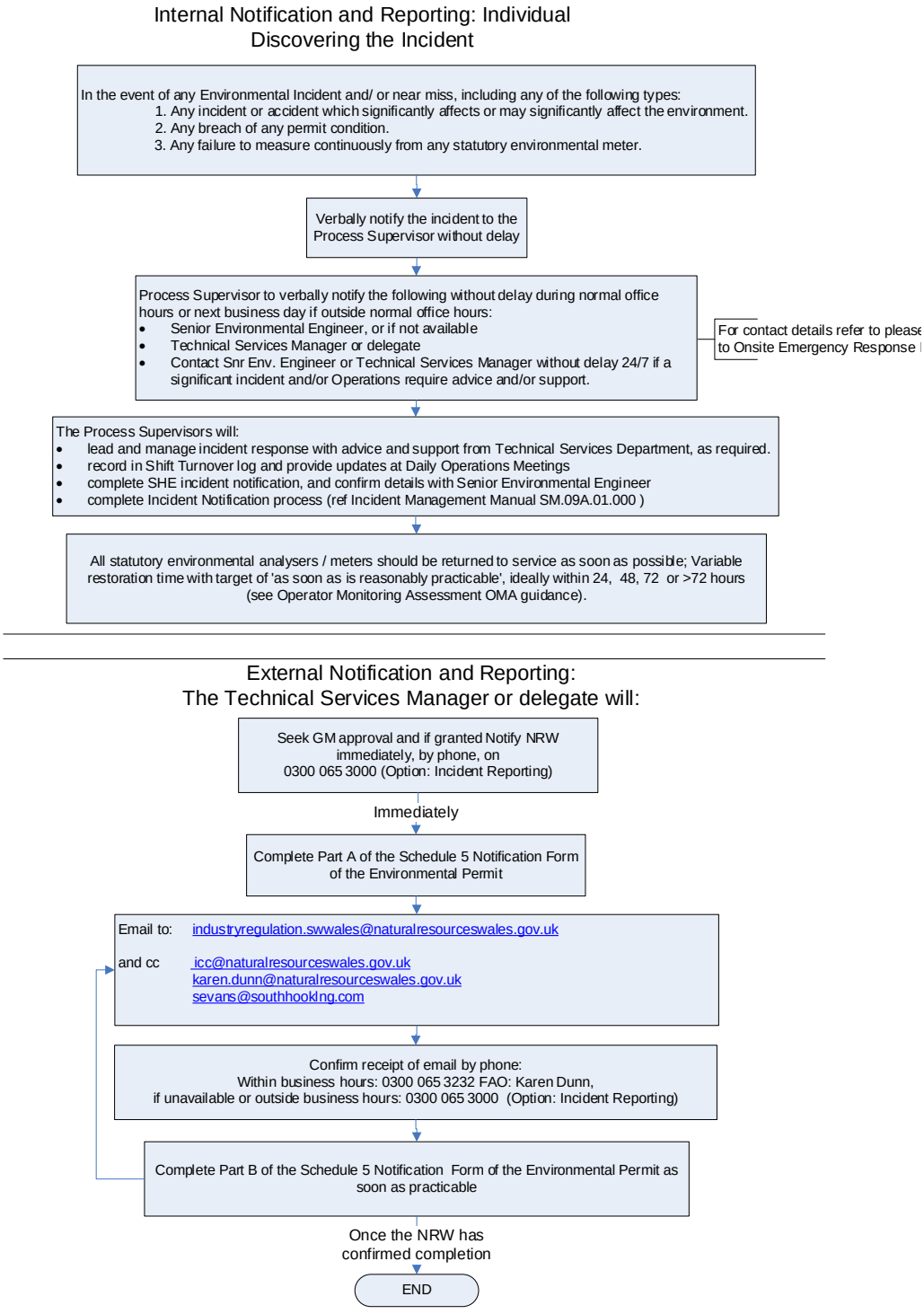


Figure 8. Process Diagram for Determining Responsibility and Notification

Incident logs

The SHLNG Site Main Controller is responsible for keeping an up-to-date incident log recording the individuals involved, actions taken, decisions and communications made during management of the incident. All individuals involved with management of the incident should, if practicable, make notes to record the various actions and decisions taken.

Notification to undertake monitoring and/or spot sampling

In accordance with the EPR Environmental Permit the Technical Services Manager or delegate shall ensure:

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.

Notification of any change in the operator's trading name, registered name or registered office address,

or any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

In accordance with the EPR Environmental Permit the Technical Services Manager or delegate shall ensure:

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.

Notification of change in the nature or functioning, or an extension of the permitted activities

In accordance with the EPR Environmental Permit the Technical Services Manager or delegate shall ensure:

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.

Notification before implementation of any part of the site closure plan.

In accordance with the EPR Environmental Permit the Technical Services Manager or delegate shall ensure:

4.3.6 Natural Resources Wales shall be given at least 14 days' notice before implementation of any part of the site closure plan.

Notification climate change agreement with the Government

In accordance with the EPR Environmental Permit the Technical Services Manager or delegate shall ensure:

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.

Notification of the condition of the site

The SHLNG Site Lease Representative will, in accordance with Schedule 5 - 13.3 of the Site Lease, prior to commencing development on or using a contaminant-affected area, offer the Landlord, by written notice, reasonable opportunity to undertake a Phase II study of the relevant part of the CAS Area; and reasonable opportunity to remove or remediate contamination upon or in the vicinity of the CAS Area, with a view to making that area free of material contamination.

Notification of factors affecting the Landlord's interest

The SHLNG Site Lease Representative will serve an Expansion Notice on the Landlord, under Condition 3.14.3 of the Site Lease Agreement, should SHLNG wish to use the Expansion Area or relevant part of it for uses other than for the permitted use of the Conservation Area, incidental works, or as a means of access to or from the highway and/or to or from parts of the premises in connection with the authorised use of the premises.

Also, in compliance with the Site Lease Agreement, the SHLNG Site Lease Representative will ensure that the Landlord is notified as follows:

- Promptly, under Condition 3.23, by providing the full particulars or a copy, of any notice or occurrence that is capable realistically of adversely affecting the Landlord's interest in the premises.
- As soon as reasonably practicable in writing, under Condition 3.25, of any defect in the premises, this might realistically give rise to a duty or liability on the Landlord.
- Promptly, under Condition 3.31.1, if any written legal documentation is received in respect of contamination of the premises or neighbouring property.
- Promptly, under Schedule 5-17.1.1, in the event of the Tenant becoming aware of a potential Environmental Claim or a situation which would be likely to give rise to this.
- Promptly, under Schedule 5-17.1.2, in the event of any release causing contamination affecting all or a part of the premises that is not in compliance with or must be reported under Environmental Laws, except for those permitted by applicable permits or authorisations.
- The Technical Services Manager will provide the SHLNG Site Lease Representative a full copy of any notice, investigation or claim received relating to such Environmental Claims or releases under Schedule 5-17.2, for onward transmission to the Landlord.

Interpretation (in EPR Environmental Permit)

4.4.2 In this section on Environmental Reporting and Notification and the EPR Environmental 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.

3.21.5 Internal Reporting and Communication

Reporting requirements

Internal reporting and communication requirements are described in the table below.

Report/Communication	By	To	Schedule/Frequency
Biannual and annual emission reports	Senior Environmental Engineer	Process Superintendent	Biannually and annually
Performance of activities	Senior Environmental Engineer	Technical Services Manager	Annually
Site condition reports and monitoring	Senior Environmental Engineer	Technical Services Manager	As required
Submission of above Environmental reports	Senior Environmental Engineer	NRW	Biannually/annually in January/as appropriate
Site Lease notifications and required information	SHLNG Site Lease Representative or delegate	Landlord Representative	As required

Table 27. Internal Reporting and Communication Requirements

4. Additional Information

4.1 Acronyms and Definitions

The acronyms and definitions listed below apply throughout this document.

Term	Definition
EMS	Environmental Management System
EPR Environmental Permit	The EPR Environmental Permitting Regulations (EPR) Environmental Permit EPR/XP3538LD, as amended (formerly the PPC Permit), copy kept on LAN.
ESOS	Energy Saving Opportunity Scheme
EU ETS	European Union Emissions Trading Scheme
GHG	Greenhouse gas
GHG Permit	The permit (No. UK-W-IN-11929) issued under The Greenhouse Gas Emissions Trading Scheme Regulations 2012 (SI 2012, No. 3038) (the Regulations), copy kept on LAN.
LAN	South Hook LNG Terminal Company LTD local area network (LAN) computer system, associated devices and servers
Natural Resources Wales (NRW)	Environmental Regulator, previously known as The Environmental Agency Wales (EAW)
NCV	Net calorific value
SHEMS Document	Any document developed by SHLNG to support and satisfy the SHEMS expectations and guidelines. i.e. any document forming part of the SHEMS Documentation Suite.
Terminal	South Hook LNG Terminal.

Table 28. Acronyms and Definitions

5. Appendices

Contents

Appendix 1 Reference Documents

Reference documents applicable to this procedure are listed in the table below.

Number	Title
PY-000-00-01	Safety, Security, Health and Environmental Policy
PY.000.00.02	Major Accident Prevention Policy
PY.000.00.03	Quality Policy
PE.05C.02.001.00	Control of Substances Hazardous to Health (COSHH)
PE.05D.00.001.00	Authorisation of Motor Vehicles & Mobile Equipment
SM.06A.01.000.00	Operating Manual
SM.06A.16.000.00	Caustic Operations Manual
SM.06A.22.000.00	Utilities Manual
PE.06A.00.085.00	Fiscal Gas Metering System Maintenance
PE.06C.01.001.00	Drainage Systems Operation, Maintenance
OP.06A.00.024.00	Road Tanker Earthing
PE.06A.00.131.00	Operational Surveillance Routines
PE.06A.00.129.00	Refuelling and Decanting Oil
PE.06C.01.002.00	Hazardous Waste Store Management
SM.06A.09.000.00	Maintenance Manual
SM.06B.02.000.00	Permit to Work Manual
SM.07A.01.000.00	Management of Change
SM.09A.01.000.00	Incident Management Manual
IT-SD-001	Information Technology
PT-PE-002	Contract Management
SHEMS System 5-B	Personnel Safety Management - Material Handling and Storage
SHEMS System 6-A	Operating & Maintenance Procedures
SHEMS System 6-B	Work Management
SHEMS System 6-D	Asset Integrity Management
SHEMS System 10-A	Emergency Preparedness and Community Awareness
Management System Requirements Guidance,	Management System Requirements Guidance, CSA Group,
Minimum Requirements for the Self-Monitoring of Flow	Minimum Requirements for the Self-Monitoring of Flow, NRW, Environment Agency, gov.uk website

Appendix 2 Document Forms

SHEMS forms applicable to this procedure are listed in the table below.

Number	Title
FM.06C.01.000.01	Site Waste Management Plan
FM.06C.01.000.02	Waste Register
FM.06C.01.000.03	Environmental Monthly Site Inspection Checklist
FM.06C.01.000.04	Nature Conservation Area Management Programme
FM.06C.01.000.05	Site Waste Management Plan Review Form
FM.06C.01.000.06	Register of Raw Materials
FM.06C.01.000.07	Noise Monitoring Reporting Form
FM.06C.01.000.08	Contractor Waste Management Data Form
FM.06C.01.000.09	Environmental Management Programme (EMP)
FM.06C.01.000.10	SHLNG Environmental Aspects & Impacts Register
FM.06C.01.000.11	SHLNG Register of Legal and Other Requirements

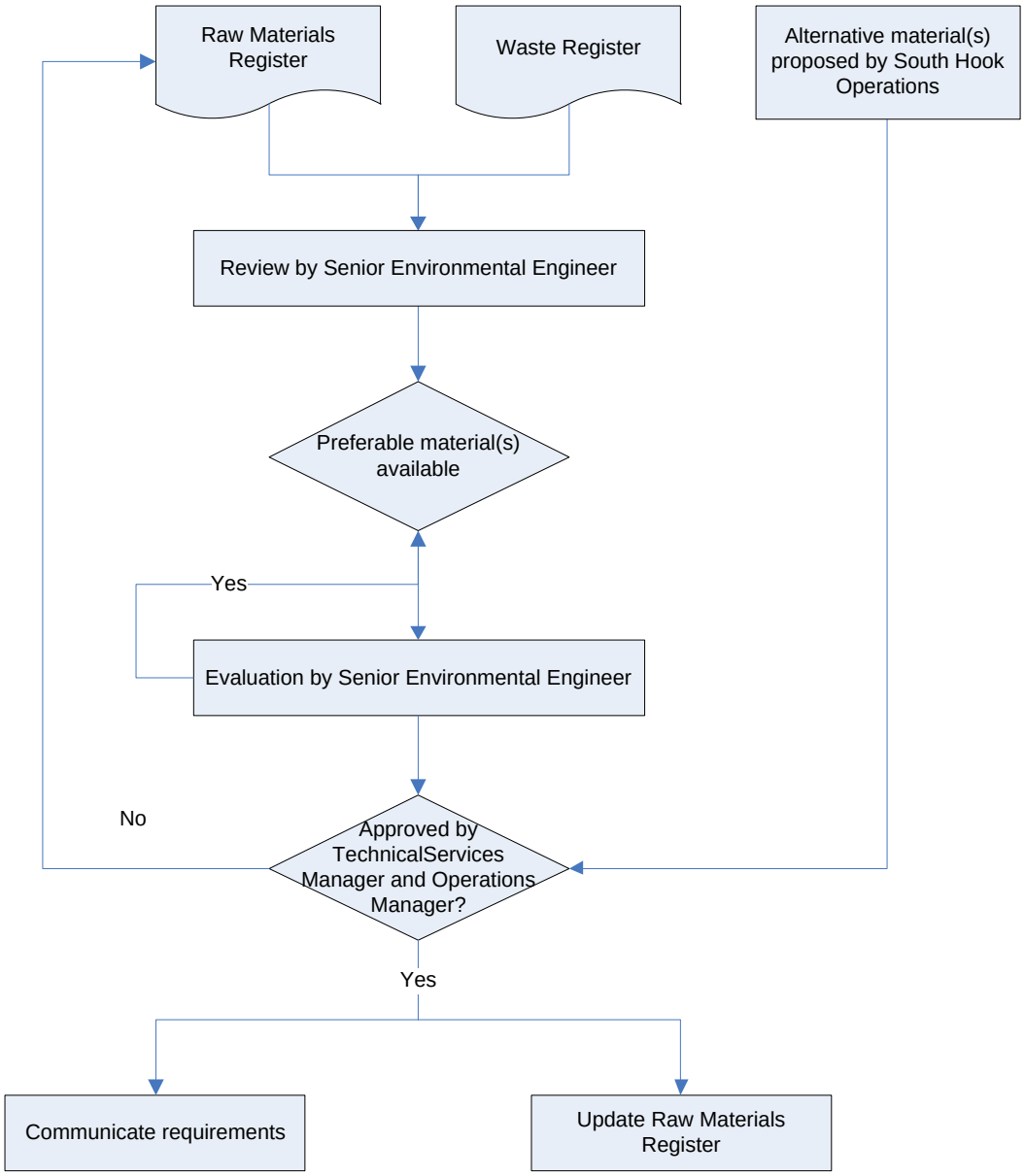
Appendix 3 SHLNG Site Plan

Appendix 4 Alarm set points - for emissions

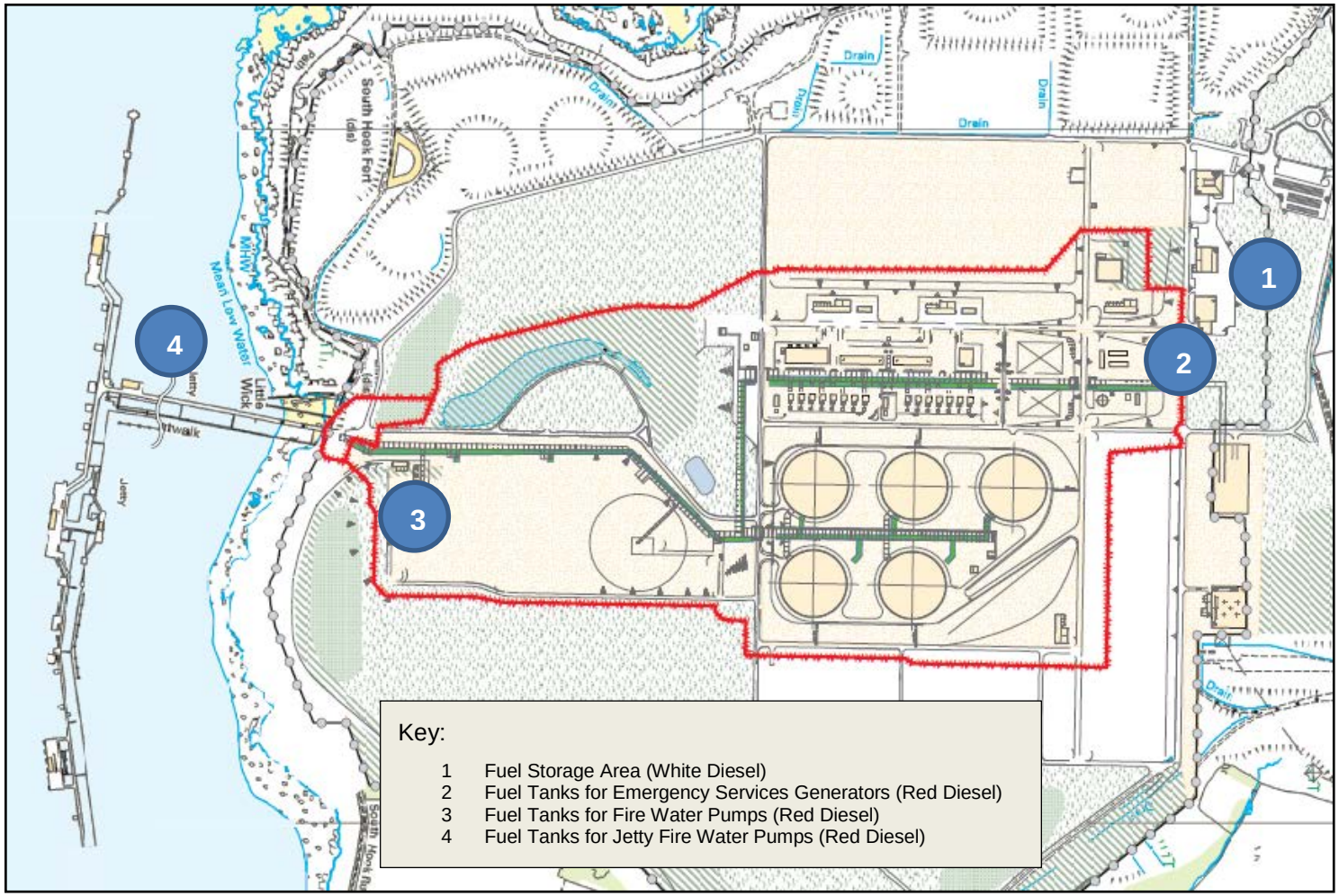
Parameter	Units	Emission limit value (ELV) / Regulatory Limit	Alarm Level			
			Low Low	Low	High	High High
Water W1						
Discontinuous Monitoring						
pH (daily)	pH	6 - 9	6.3	6.5	8.5	8.7
Turbidity (daily)		Background			50 Indicative ELV (not absolute / set to protect Regulatory Limit)	
Oil and grease (daily)	mg/l	None visible (10 indicative ELV)			Visible / detectable by smell 8 (Indicative ELV (not absolute/ set to protect Regulatory Limit)	
BOD	mg/l	Background			30 mg/l Indicative alarm, no Regulatory Limit	
List II metals (monthly)	micro-grams/l	Background			Cu 15 micrograms/l Zn 40 micrograms/l Fe 1000 micrograms/l Indicative ELV (not absolute / set to protect Regulatory Limit)	
TOC	mg/l	Background			49.9 mg/l Indicative alarm, no Regulatory Limit	
Water W2						
Discontinuous Monitoring						
Turbidity (monthly)		Background			50 Indicative ELV (not absolute / set to protect Regulatory Limit)	
BOD (monthly)	mg/l	Background			30 mg/l Indicative alarm, no Regulatory Limit	
Nitrates (as N) (daily)	mg/l	50			40	
Nitrates (as N) (daily)	kg/day	100			80	
Nitrates (as N) - annual load (rolling average)	kg/day	50			40	

Parameter	Units	Emission limit value (ELV) / Regulatory Limit	Alarm Level			
			Low Low	Low	High	High High
Total residual oxidant (as total free chlorine) (monthly)	mg/l	0.1			0.08	
Oil and grease (daily)	mg/l	None visible (10 indicative ELV)			Visible / detectable by smell 8 (Indicative ELV (not absolute/ set to protect Regulatory Limit)	
Continuous Monitoring						
Flow (alarm on DCS)	m^3 / day	3500			2880	
Flow (alarm on DCS)	m^3 / hour	164			120	
pH (alarm on DCS)	pH Units	6 - 9	6.3	6.5	8.5	8.7
Temperature (alarm on DCS)	°C	30			27	
Air Emissions SCV 43H & 44A						
Continuous Monitoring						
NO_X	mg / Nm^3	107		<10 instant aneous	95 daily mean	107 (daily mean and instantane ous)
Discontinuous Monitoring						
NO_X	mg / Nm^3	107	0	<10	95	107
Other Continuous Monitoring						
Flare	kg / hour				Any confirmed flaring event. 200kg/hour (Indicative ELV (not absolute/ set to protect Regulatory Limit)	
Coriolis fuel gas flow metering	Density kg/m^3 Flow tonnes/ hour				Density >100 kg/m^3 Flow <1.65 tonnes/hour	

Appendix 5 Raw Materials Management Flowchart



Appendix 6 Map of Diesel Storage Locations



Appendix 7 Contact Details

Details for contacting SHLNG waste management personnel are provided in the table below.

Contact	Telephone
Business Services Coordinator (SHLNG Waste Management Co-ordinator)	01437 782190
General Services Manager	01437 78 2006
Business Services Manager	01437 782105
Technical Services Administrator	01437 782004
Reception	01437 78 2000
Senior Environmental Engineer	01437 78 2101
Technical Services Manager	01437 782001
Duty on-call Incident Response Team To be contacted in the event of a waste management emergency occurring outside of normal working hours.	Via SHLNG Security Section

Appendix 8 Emissions to Air - CEMS Invalidation Log

Emissions to Air: CEM Invalidation log									
Date	Duration of invalid CEM records (Hours)	Cumulative invalidated days (In the calendar year)							Comments
								Total	

Valid hourly average means the measured hourly average value. To allow some discretion for zero and span gas checking, or cleaning (by flushing), an hourly average period will count as valid as long as data has been accumulated for at least two thirds of the period (40 minutes). Such discretionary periods are not to exceed more than 5 in any one 24-hour period unless agreed in writing. Where plant may be operating for less than the 24-hour period such discretionary periods not to exceed more than one quarter of the overall valid hourly average periods unless agreed in writing.

Validated hourly average means the valid hourly average after having subtracted the relevant 95% confidence interval specified in Annex VIII of the LCPD.

Validated daily average means the daily average derived from the validated hourly averages in a defined 24 –hour period.

Invalid hourly average means an hourly average period invalidated due to malfunction of or maintenance work being carried out on the continuous measurement system.

Invalidated daily average means any day in which more than three hourly averages are invalid (due to malfunction of or maintenance work being carried out on the continuous measurement system).

Appendix 9 Reactive Noise Monitoring (following Process Noise Complaint) – User Guide

Response to complaints

The Technical Services Department may perform additional noise monitoring in the event of SHLNG receiving any complaint relating to process noise from any internal or external source. Depending on the by the 'case by case' circumstances, such monitoring may be guided by the Process Map (below) and include monitoring at the historic ambient noise monitoring locations as shown in the map below entitled 'Historic Ambient Noise Monitoring Locations'.

The data collected during ambient and reactive noise monitoring will be compared to the data collected in the vicinity of these locations, as part of the Application for Planning Permission submitted April 2003, as shown on the map below entitled 'Map Illustration of Predicted dB(A) Levels'. The table below summarises details of predicted noise levels for north and south historic ambient noise monitoring locations, submitted as part of the Application for Planning Permission submitted April 2003:

Noise Monitoring Location	Predicted Noise Levels (in ES)	
	LAeq Operational Noise	LAeq Construction Noise (day)
North noise monitoring location (EPR Environmental Permit)	45 to 50	55 to 60
South noise monitoring location (EPR Environmental Permit)	40 to 45	55 to 60

Table 29. Predicted Noise Levels for North and South Monitoring Locations, submitted as part of the Application for Planning Permission submitted April 2003

The Technical Services Department may consider collecting additional noise data from a location close to the source of the complaint, as part of the complaint investigation process.

The results of this reactive noise monitoring will be analysed to establish whether the subject of the complaint is attributable to activities performed at the Terminal.

The Technical Services Department may also consider requesting the assistance of third-party expertise to assess noise levels generated by Terminal activities and make any recommendations necessary.

Equipment

The following equipment is required when collecting noise monitoring data:

- Class 1 (or equivalent) sound level meters with sound recording and outdoor weather protection.
- Anemometer.
- Tripod.
- Sound level meter.
- Digital camera.
- Thermometer.

The above equipment is stored with the Health & Safety Officer.

Equipment calibration

In accordance with BS 4142, the noise meter and calibrator will be returned to the manufacturer or supplier for recalibration at least once every 2 years. The current calibration frequency for the calibrator is annual. The use of the calibrator provided with the meter will act as an instrument check between these 2-yearly, in-depth system checks.

Further information on calibration requirements are provided in the equipment manufacturer's operating manual.

Responsibilities

The Health & Safety Officer will be responsible for:

- Undertaking and recoding noise monitoring, where appropriate
- Supporting the Senior Environmental Engineer, as required
- Ensuring that the noise meter, calibrator and anemometer are correctly maintained and regularly calibrated to ensure that they continue to operate correctly.
- Reviewing and filing the calibration certificates and any associated documentation, and, in liaison with the Senior Environmental Engineer and/or Technical Services Manager, ensuring that any recommendations made are implemented.

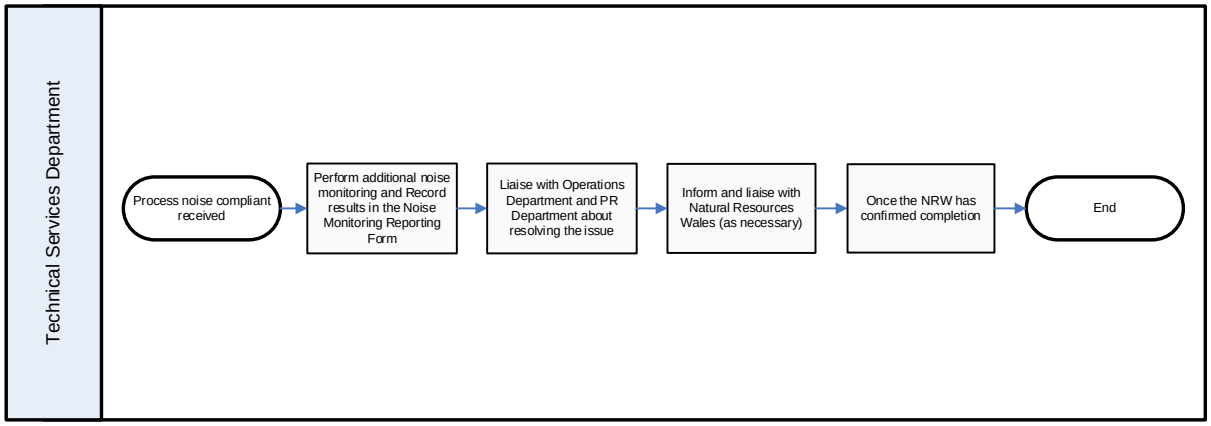


Figure 9. Process Map 'Guide' for Potential Reactive Noise Monitoring following Process Noise Complaint

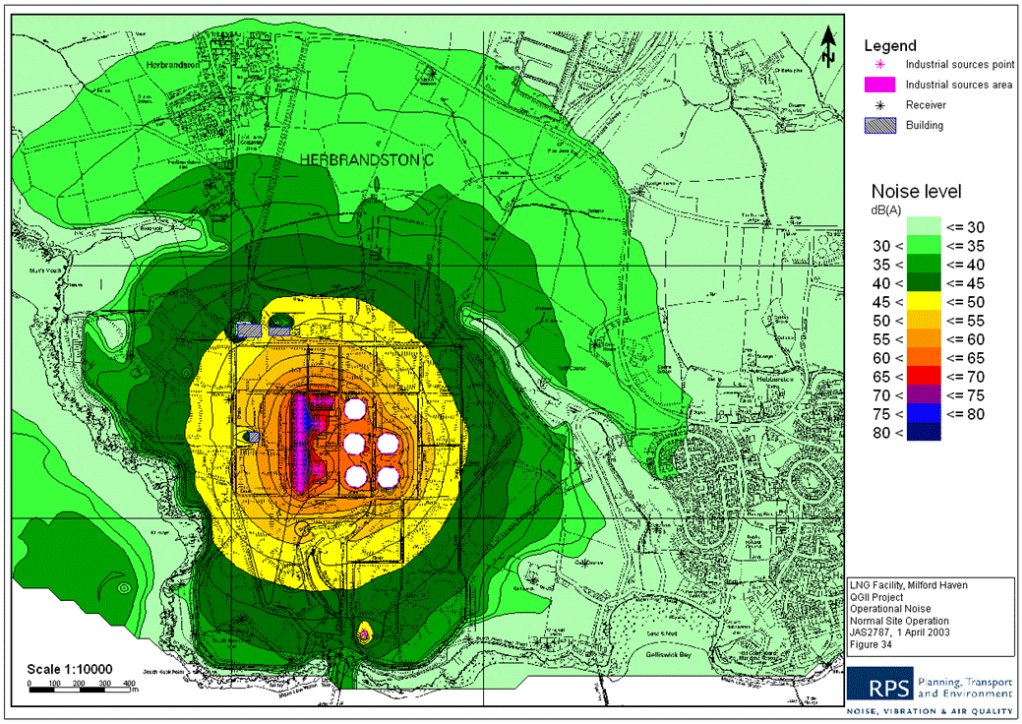


Figure 10. Map Illustration of Predicted dB(A) Level (submitted as part of the Application for Planning Permission submitted April 2003)

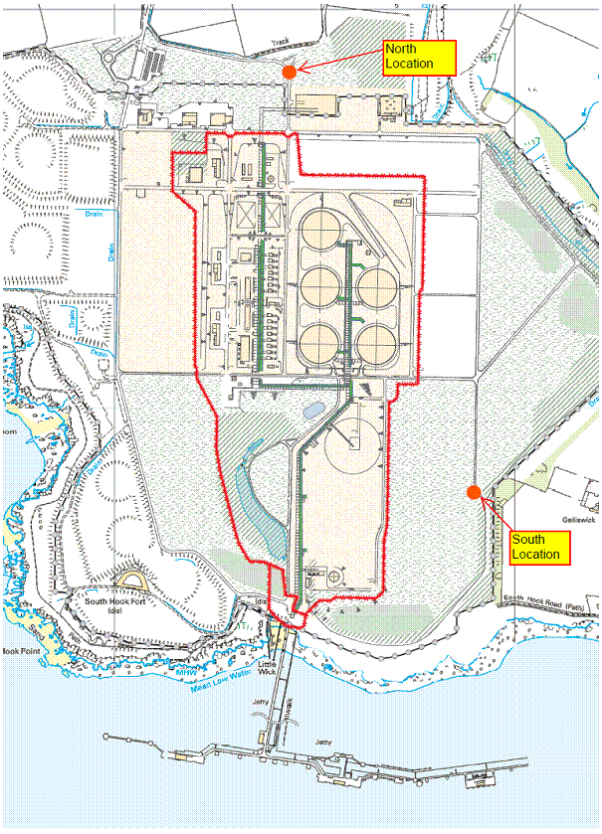


Figure 11. Map Illustration of Historic Ambient Noise Monitoring Locations

Appendix 10 Basis for Fuel Gas Emissions Factor and NCV Calculation

The table below lists the hydrocarbon components discussed within this appendix.

Hydrocarbon Component	Fuel Gas
C1	Methane
C2	Ethane
C3	Propane
C4	Butane
C5	Pentane
C6	Hexane

The EU ETS emissions can be calculated on a number of bases but the starting point for calculation is to establish the Carbon Emissions Factor on a molar basis/ CEF(m). This is represented by the following formula.

$CEF(m)=MCO_2$ * Fuel Factor

Where MCO_2 is the molar mass of carbon dioxide. The “Fuel Factor” gives a value in “kmol of CO_2/kmol of Fuel Gas”. It should be noted that this is the same as volume of CO_2 per volume of Fuel Gas. If the fuel volume is known then the CO_2 volume produced by full combustion can be calculated.

Basis of fuel factor equation

The above Fuel Factor equation can be easily explained by looking at the combustion reaction for each fuel component individually to establish the CO_2 produced by each component.

For the CH_4 component in the fuel gas (C1) the reaction equation showing the products of combustion on the right hand side is as follows:

$CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$

This shows that for each kmol of CH_4 in the fuel gas one kmol of CO_2 is produced therefore as an example if the molar fraction of CH_4 in the analysed fuel is 0.85334 then 0.85334 kmol of CO_2 is produced per kmol of fuel due to the CH_4 component.

Using the same argument for the C_2H_6 component (C2) the reaction equation is:

$2C_2H_6 + 7O_2 \rightarrow 4CO_2 + 6H_2O$

In this case 4 kmol of CO2 is produced per 2 kmol of C_2H_6, or in simple terms two kmol of CO_2 is produced per kmol of fuel due to C_2H_6. As previously by way of example if the molar percentage of C_2H_6 in the analysed fuel is 0.04494 then 0.08988 kmol of CO_2 is produced per kmol of fuel.

The same argument is applied through the hydrocarbon range as below.

$C_3H_8 + 5O_2 \rightarrow 3CO_2 + 4H_2O$

Three kmol of CO_2 is produced per kmol of C_3 in the fuel gas

$2C_4H10 + 13O_2 \rightarrow 8CO_2 + 10H_2O$

Four kmol of CO_2 is produced per kmol of C_4 in the fuel gas (note IC_4 and NC_4 are summated to give a total C_4 molar fraction).

$C5H_{12} + 8O_2 \rightarrow 5CO_2 + 6H_2O$

Five kmol of CO_2 is produced per kmol of C_5 in the fuel gas (note IC_5, NC_5 and NEO-C_5 are summated to give a total C_5 molar fraction)

$2C6H_{14} + 19O_2 \rightarrow 12CO_2 + 14H_2O$

Six kmol of CO_2 is produced per kmol of C_6+ in the fuel gas.

Each factor is multiplied by the molar percentage obtained from the fuel analysis (as shown for CH_4 and C_2H_6).

Note: CO_2 in the fuel gas passes through and can be considered a C_1 component.

Summating this with the CO_2 produced by each hydrocarbon component leads to the Fuel Factor equation.

This calculation takes place in PIMS using the molar fraction (mol %) of the fuel gas composition from the gas chromatograph. The formula used in the PIMS is:

Fuel Factor = $(\%C_1*1)+(\%C_2*2)+(\%C_3*3)+(\%C_4*4)+(\%C_5*5)+(\%C_6*6)+(\%CO_2*1)/ 100$

Fuel Factor Formulae [source: The calculation is derived from: Briefing note on provision of UK natural gas supply data relevant to the EU Emissions Trading Scheme; Defra, Issue D – 15th August 2005}

Basis of the carbon emissions factor calculation

By multiplying the above fuel factor (kmol CO_2/kmol Fuel Gas) by the molecular weight for CO_2 (44.0095 g/mol) The result is an emissions factor in terms of gCO_2/ mol Fuel Gas or the Molar Emissions Factor – CEF(m).

CEF(m) = Fuel Factor*44.0095

To obtain the EU ETS net carbon emissions factors – CEF(n) - this is simply a case of dividing the CEF(m) value by the molar NCV(m) value. This will give a Net CO_2 emissions factor

CEF(n) in g CO_2/kJ.

CEF(n) = CEF(m) / NCV(m)

This whole emissions factor calculation takes place in PIMS.

Calorific values

Gross calorific value and net calorific value are calculated according to ISO 6976:2005 Natural Gas – Calculation of calorific values, density, relative density and Wobbe index from compositional data in the flow computer and stored in PIMS.

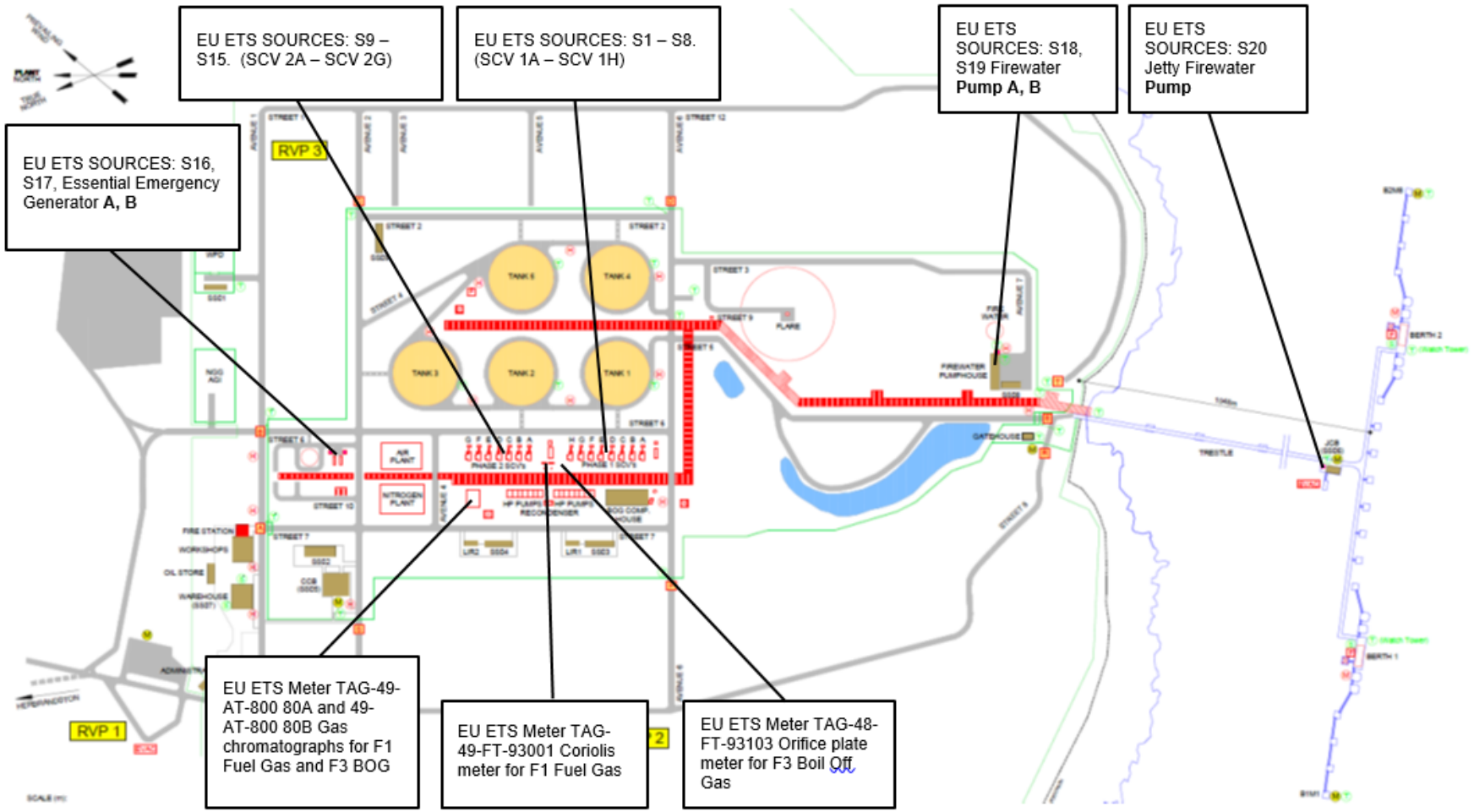
To obtain the molar net calorific value in KJ/ mol required in the CEF(n) factor, the ISO 6976:2005 section 5.1 approach is used ‘Calculation of calorific value on a molar basis’, namely:

NCV(m) (kJ/mol) = (C_1 NCV(m)*C_1%mol)+(C_2 NCV(m)*C_2%mol)+(C_3 NCV(m) *etc.

Where the component Inferior NCV(m) is derived from ISO 6976:2005 table 3 at 0 deg C.

This calculation for molar NCV takes place in PIMS and is then used in the calculation of the emissions factor above.

Appendix 11 Site Diagram Showing Emissions Sources and Metering



Appendix 12 EU ETS Risk Assessment

The probability has been assessed using:
High – may occur more than 12 times a year
Medium – may occur up to 12 times per year
Low – may occur 4 times a year or less

The impact has been assessed using:
High - potential material impact on data
Medium - no material impact but potential compliance impact
L – no material or compliance impact

The initial risk has level us classified as:

PROBABILITY	IMPACT: Low	Medium	High
Low	L	M	H
Medium	L	H	H
High	M	H	H

The residual risk level takes into account the SHLNG control.

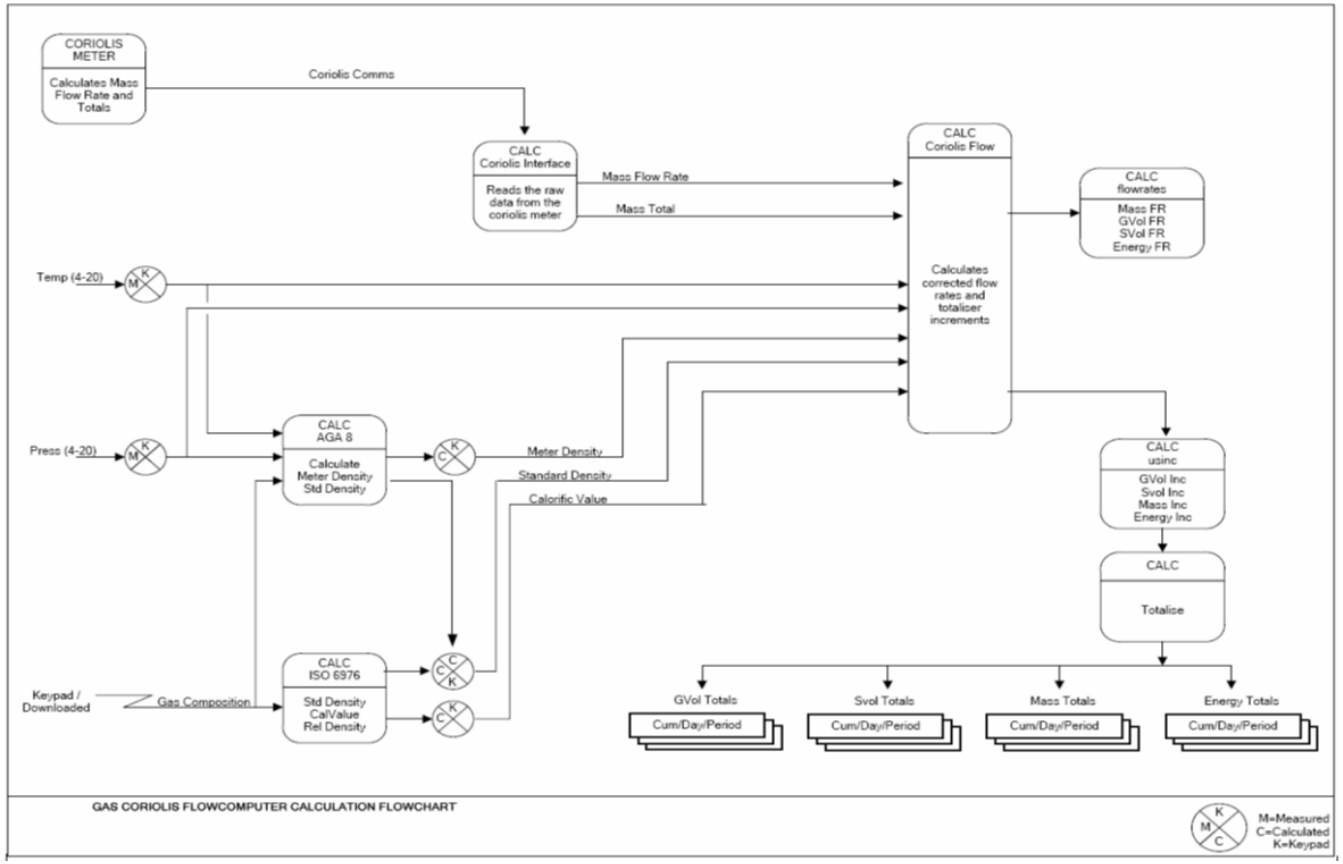
Incident	Probability	Impact	Initial Risk Level	Control Mechanism / Process	Residual Risk Level
Fuel Gas: incorrect meter type/installation	L	H	H	Kelton Fuel metering uncertainty studies. External verification.	L
Fuel Gas Measurement: meter drift	M	H	H	Calibration / inspection routines Internal review. Internal audit. External annual verification.	L
Fuel Gas Measurement: meter failure	L	H	H	Calibration routines. Internal review. Internal audit. External annual verification.	L

Incident	Probability	Impact	Initial Risk Level	Control Mechanism / Process	Residual Risk Level
Diesel measurement: incorrect estimation of running hours	L	L	L	Internal review. Internal audit. External annual verification.	L
Diesel measurement: incorrect calculation of consumption from running hours	L	L	L	Manufacturer standard consumption rates.	L
NCV/EF: use of chromatograph data	L	H	H	Use of ISO17025 accredited laboratory. Internal review. Internal audit. External annual verification.	L
NCV/EF: use of correct national factors – diesel.	L	M	M	Internal review. Internal audit. External annual verification.	L
DCS: loss of sensor communication	M	H	H	Internal review. Internal audit. External annual verification.	L
DCS: incorrect TAG mapping	L	H	H	Internal review. Internal audit. External annual verification.	L
PIMS: loss of communication	M	H	H	Internal review. Internal audit. External annual verification.	L
Data Handling					
CO2 incorrect data aggregation process	L	H	H	Internal review. Internal audit. External annual verification.	L
CO2 calculation integrity/corruption	L	H	H	Controlled access to calculation tools. Internal review. Internal audit. External annual verification.	L
Conversion factor errors	L	H	H	Controlled access to calculation tools. Internal review. Internal audit. External annual verification.	L

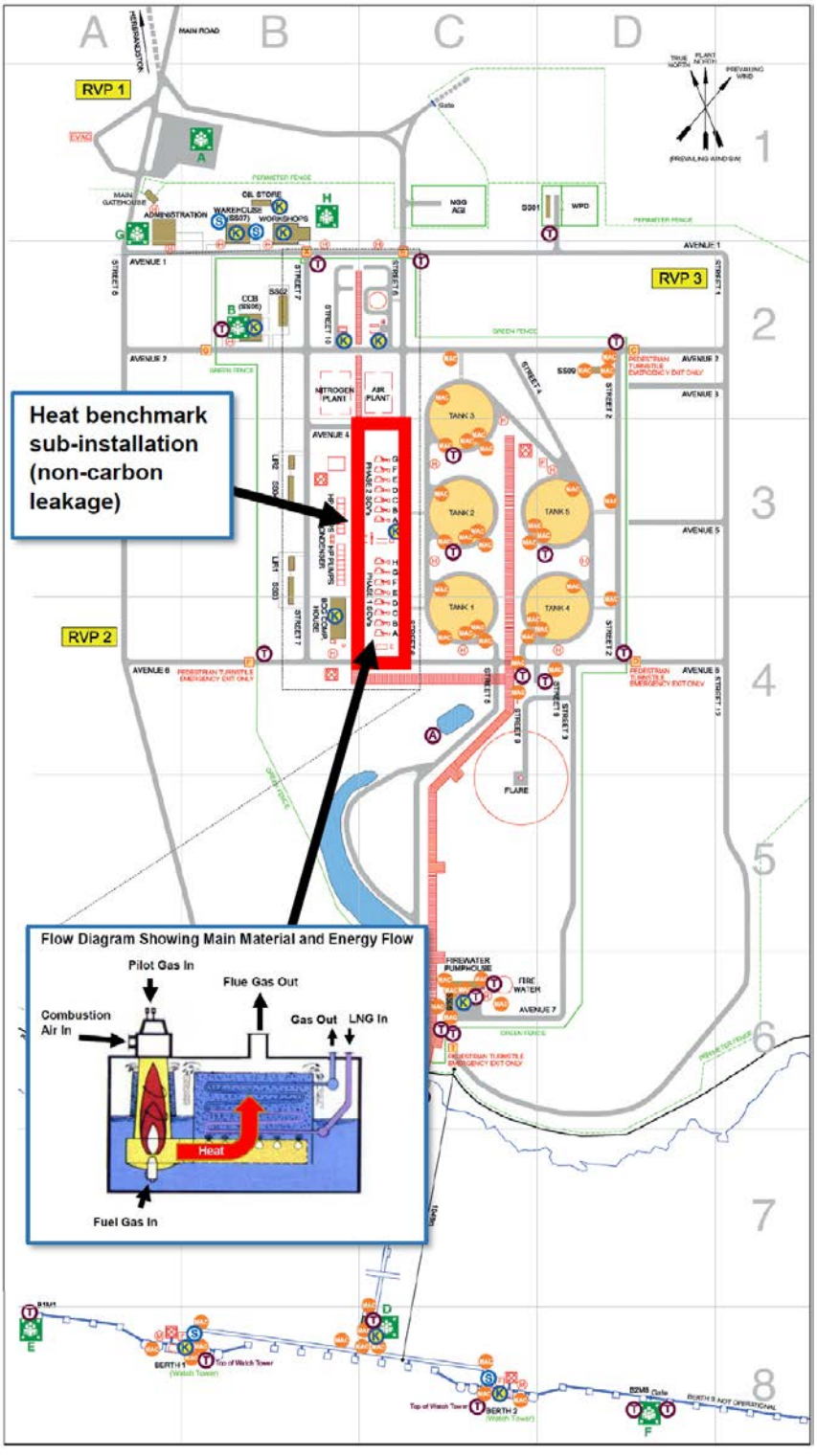
Incident	Probability	Impact	Initial Risk Level	Control Mechanism / Process	Residual Risk Level
Emissions factor errors	L	H	H	Controlled access to calculation tools. Internal review. Internal audit. External annual verification.	L
NCV errors	L	H	H	Controlled access to calculation tools. Internal review. External verification	L
Data transcription errors	M	H	H	Controlled access to calculation tools. Internal review. External verification	L
Correction to normal conditions	L	M	M	Controlled access to calculation tools. Internal review and external verification	L
EU ETS Emissions Trading Portal Annual Emissions Monitoring (AEM) report data entry errors	M	H	H	Controlled access to calculation tools and AEM report template. Internal review and external verification.	L
Competency of Personnel					
Maintenance of competence of SHLNG personnel	L	H	H	Conformance with the SHLNG Competence Assurance Procedure (BS1-20.00-01).	L
Compliance					
Changes in EU ETS requirements and conditions from Phase III to Phase III (2013 – 2020)	M	H	H	Engagement of EU ETS expert consultant to keep SHLNG up to date with new developments and implications for SHLNG operations. Internal review by Senior Environmental Engineer	L

Appendix 13 Coriolis Meter Calculation Flowchart

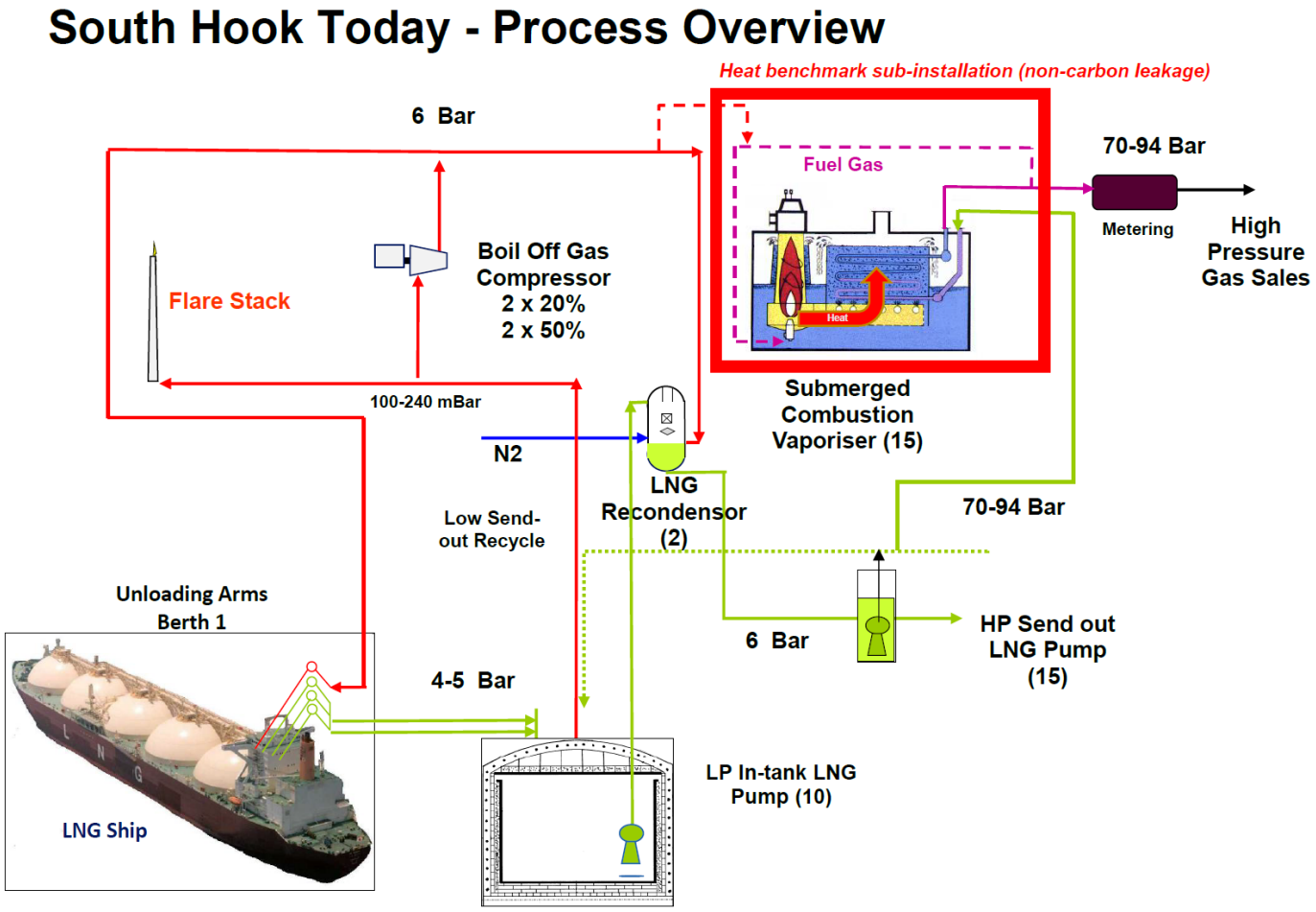
From vendor document 580143891-PO-71001-IC3-001



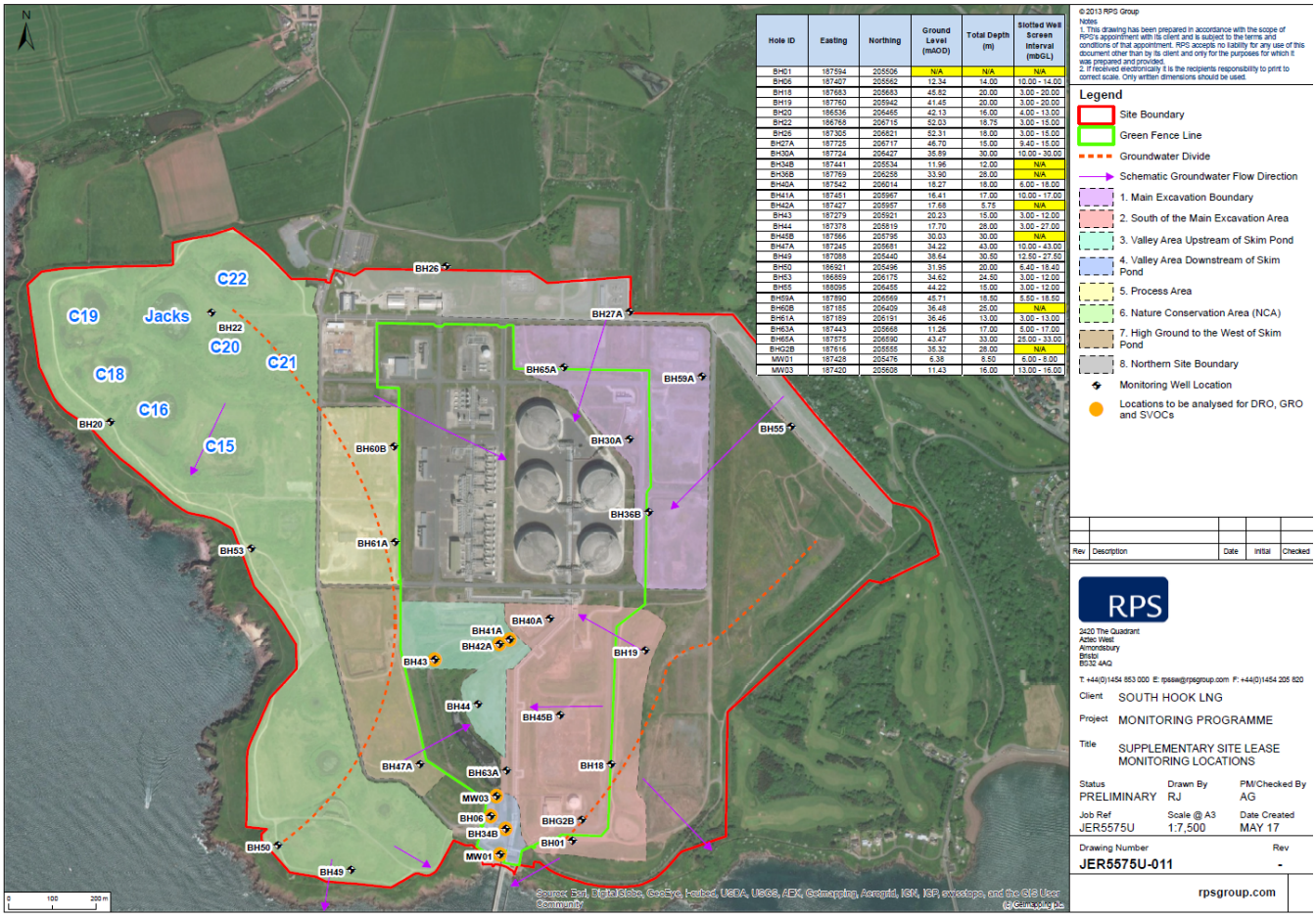
Appendix 14 Site diagram showing the South Hook LNG Terminal heat benchmark sub-installation (non-carbon leakage) and flow diagram of SCV showing the main material and energy flows



Appendix 15 Process flow diagram showing the the main material and energy flows and the South Hook LNG Terminal heat benchmark sub-installation (non-carbon leakage)



Appendix 16 Monitoring Borehole and Spring Locations



Appendix 17 Site Waste Management Plan

Site Waste Management Plan	Form	FM.06C.01.000.01
	Revision	00
	Parent Document	SM.06C.01.000.00

Section 1: Responsibilities	
Project Title:	
Name of Vendor/ Supplier/ Principal Contractor:	
Name and Title of Site Waste Management Plan Originator	
Name and Title of Person Responsible for management of Contractor Waste on site:	
Name and Title of South Hook LNG Contract Administrator for Project:	
Name and Title of South Hook General Services Contract Manager:	
Name and Title of South Hook Senior Environmental Engineer:	
Notes, amendments	

Section 2: Project Detail	
Location/s of work on site:	
Brief description of Project work that will generate wastes:	
Contract/Project commencement date:	
Estimated commencement date of work which generates Project waste:	
Contract/ Project duration:	
Estimated completion date of work which generates Project waste:	
Notes, amendments:	

Section 3: Waste Management

	Estimated Quantity (tonnes)							
Waste Type	Reuse on site	Reuse off site	Recycling on site	Recycling off site	Other form of recovery on site	Other form of recovery off site	Sent to landfill	Other disposal
Inert								
Non-hazardous								

	Site Waste Management Plan	Form	FM.06C.01.000.01
		Revision	00
		Parent Document	SM.06C.01.000.00

Section 3: Waste Management

Estimated Quantity (tonnes)								
Waste Type	Reuse on site	Reuse off site	Recycling on site	Recycling off site	Other form of recovery on site	Other form of recovery off site	Sent to landfill	Other disposal
Hazardous								
Totals:								

Section 4: Materials and Resources Efficiency

Describe any methods adopted during the conception, design and specification phases of the project to reduce the amount of waste arising.

Type of Waste	Amount	Method	Resource Saving *(Quantify if possible)*

Section 5: Declaration

South Hook and the Vendor / Supplier/ Principal Contractor will take all reasonable steps to ensure that:

(a) All waste from the site is dealt with in accordance with the waste duty of care in Section 34 of the Environmental Protection Act 1990 and the Environmental Protection (Duty of Care) regulations 1991.

(b) Materials will be handled efficiently and waste managed appropriately following **Best** Available Techniques.

Vendor / Supplier/ Principal Contractor **Representative**

Signature: ..... Name: ..... Date: .....

South Hook LNG General Services Contract Manager

Signature: ..... Name: ..... Date: .....

Appendix 18 Environmental Monthly Site Inspection Checklist

	Environmental Monthly Site Inspection Checklist	Form	FM.06C.01.000.03
		Revision	00
		Parent Document	SM.06C.01.000.00

CHECK COMPLETED BY: DATE OF CHECK:

AREA	ITEM	CONDITION – (Visual Only)	STATUS	OBSERVATIONS
Process Areas	Spill Kits - (Fuel Storage Area, Hazardous Waste Store, Caustic Tanks x 2, Emergency Services Generator Diesel Tanks, Fire Water Pump Diesel Tanks, SCVs x 2 & BOG House)	Audit Tags in Place (check contents if tags missing & replenish contents)		
		Signage Visible and Undamaged		
		Spill kit - 100% Content		
	Fuel Storage Area	Spill kit - 100% Content		
	Hazardous Waste Store	Various Spill Kit material		
	Caustic Off-loading & Storage Area	Bund Integrity & impermeable pavement		
		Inspection of Tanks, pipework & Bund Empty		
		Spill kit - 100% Content		
	Emergency Generators Diesel Storage Tanks	Bund Integrity & impermeable pavement		
		Inspection of Tanks, pipework & Bund Empty		
		Spill kit- 100% Content		
	Firewater Diesel Tank	Bund Integrity & impermeable pavement		
		Inspection of Tanks, pipework & Bund Empty		
		Spill kit - 100% Content		
	BOG Compressor House	Spill kit - 100% Content		
		Inspection of impermeable pavements		
	SCV's	Spill kit - 100% Content		
		Inspection of impermeable pavements		
	Substation 9	Inspection of impermeable pavements		
	Substation 3 & 4	Inspection of impermeable pavements		
General Site Areas	Drainage	No Visible Oily Films or Debris / Refuse in V Ditches		
		No Evidence of Blocked Drains, Including Closed Drains and Open Drains to Surface Water		
	Eastern Side of Site	Waste Management – no deposits of wastes on the ground		
		Other observations		
	Admin block to warehouse	Inspection of impermeable pavements		
Jetty	Jetty Firewater Pump Diesel Tank	Bund Integrity & impermeable pavement (visual)		
		Inspection of Tanks, pipework & and Empty		
	Spill Kits (Jetty Firewater Pump Diesel Tank	Bunded Tray Present & Empty		
		Spill kit -100% Content, Audit Tags & signs in Place		
	Spill Kits Jetty Berth 1	Spill kit - 100% Content, Audit Tags & signs in Place,		
	Spill Kits Jetty Berth 2	Spill kit - 100% Content, Audit Tags & signs in Place,		
Skim Pond	Outfall	Inspect level of water level at outfall of the skim pond. Is water flowing out? (Yes/No) If no, inform Technical Services		
	Oil Boom	Check oil boom across weir to ensure boom is still catching oil. Organise boom replacement if necessary		
Attenuation Basin	Inlet & Outlet A	Check in and around the inlet for any debris and obstacles, Check the outlet is free to discharge		
		Check for any defects in the valve at the mouth of the inlet and at its connection with the headwall.		

Page 1 of 2

	Environmental Monthly Site Inspection Checklist	Form	FM.06C.01.000.03	
		Revision	00	
		Parent Document	SM.06C.01.000.00	
Waste Storage Areas	Canteen Waste Compound	Signage and Labelling Adequate		
		General Housekeeping		
		Waste Placed in Correct Bin		
		Bin Lids Closed		
	Container Storage Area - West	General Housekeeping & site cleanliness		
	Waste Compound - East	Signage and Labelling Adequate		
		Compound Secure		
		General Housekeeping		
		Waste Placed in Correct Bin		
		Bin Lids Closed		
	Hazardous Waste Store	Signage and Labelling Adequate		
		General Housekeeping		
		Waste Placed in Correct Location		
		Deposited Waste Labelled		
		Hazardous Waste Store Log Completed		
	Metal Skip & Warehouse Bins	Signage and Labelling Adequate		
		Skip / Bin lids closed		
		General Housekeeping & Site cleanliness satisfactory		
Other Areas	Green shed & surrounding area	General Housekeeping & site cleanliness satisfactory		
	Tarmac roads and impermeable pavements	Check all tarmac / impermeable pavements areas & report any defects		

Appendix 19 Site Waste Management Plan Review

Site Waste Management Plan Review	Form	FM.06C.01.000.05
	Revision	00
	Parent Document	SM.06C.01.000.00

Section 1: Responsibilities	
Project Title:	
Name of Vendor/ Supplier/ Principal Contractor::	
Name and Title of Site Waste Management Plan Originator	
Name and Title of Person Responsible for management of Contractor Waste on site:	
Name and Title of South Hook LNG Contract Administrator for Project:	
Name and Title of South Hook General Services Contract Manager:	
Name and Title of South Hook Senior Environmental Engineer:	
Notes, amendments	

Section 2: Project Detail	
Location/s of work on site:	
Brief description of Project work that will generate wastes:	
Contract/Project commencement date:	
Estimated commencement date of work which generates Project waste	
Contract/ Project duration:	
Estimated completion date of work which generates Project waste:	
Notes, amendments	

SHEMS	Site Waste Management Plan Review	Form	FM.06C.01.000.05
		Revision	00
		Parent Document	SM.06C.01.000.00

Section 3: Waste Management

Section 3a: Estimated Quantities (tonnes)

Original estimates taken from "Site Waste Management Plan (Form ER1-12.01-02a)

Waste Type	Reuse on site	Reuse off site	Recycling on site	Recycling off site	Other form of recovery on site	Other form of recovery off site	Sent to landfill	Other disposal
Inert								
Non-hazardous								
Hazardous								
Totals:								

Section 3b: Actual Quantity (tonnes)

Note: This information is only required for projects exceeding £500,000 in value.

Waste type	Reuse on site	Reuse off site	Recycling on site	Recycling off site	Other form of recovery on site	Other form of recovery off site	Sent to landfill	Other disposal
Inert								
Non-hazardous								
Hazardous								
Totals:								
Difference between Estimated and Actual Totals (in tonnes)								

	Site Waste Management Plan Review	Form	FM.06C.01.000.05
		Revision	00
		Parent Document	SM.06C.01.000.00

Section 4: Post- Project Review	
This section to be completed within 3 months of Project work being completed.	
Issue	**Details**
Explanation of any deviation from the planned arrangements.	
Waste forecasts exceeded.	
Waste forecasts not met.	
Cost savings achieved.	
Other	

Section 5: Confirmation

This Site Waste Management Plan has been monitored on a regular basis to ensure that work is progressing according to the plan, has been updated to record details of the actual waste management actions and waste transfers that have taken place and finally reviewed at the end of the project.

Vendor/ Supplier/ Principal Contractor Representative

Signature: ..... Name: ..... Date: .....

South Hook LNG **General Services** Contract Manager

Signature: ..... Name: ..... Date: .....

Appendix 20 Site Noise Monitoring Report

	Site Noise Monitoring Report (Attended Survey Positions)	Form	FM.06C.01.000.07
		Revision	00
		Parent Document	SM.06C.01.000.00

Location:	
Personnel:	
SLM Type / Serial No.:	Calibrator Type / Serial No. (Start): .....
SLM ID:	Calibrator Type / Serial No. (End): .....
Preamp Serial No.:	
Filename:	Date: .....

Weather	
Wind:	
Precipitation:	
Cloud Cover:	
Temperature:	
Other Notes:	

Calibration at Start:	Calibration at End: .....

Photo taken to identify location and equipment? ☐ Yes ☐ No

Description of site operating conditions and site activities:

.....

.....

.....

Description of noise environment at start of the survey. *(General observations on principal noise sources common to all periods)*:

.....

.....

.....

Page 1 of 2

	Site Noise Monitoring Report (Attended Survey Positions)	Form	FM.06C.01.000.07
		Revision	00
		Parent Document	SM.06C.01.000.00

Measurement Location: .....

Facade Location:						**Microphone Height**: .....
Measurement No.	**Start Time**	L_{Aeq}	L_{Amax1F}	L_{A10}	L_{A90}	**Observations**

Measurement Location: .....

Facade Location:						**Microphone Height**: .....
Measurement No.	**Start Time**	L_{Aeq}	L_{Amax1F}	L_{A10}	L_{A90}	**Observations**

Completed By

Name	Signature	Date
.....	.....	.....

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Appendix 21 Contractor Waste Management Data

Contractor Waste Management Data	Form	FM.06C.01.000.08
	Revision	00
	Parent Document	SM.06C.01.000.00

Section 1: Responsibilities	
Project Title:	
Name of Vendor/ Supplier/ Principal Contractor:	
Name and Title of Site Waste Management Plan Originator	
Name and Title of Person Responsible for management of Contractor Waste on site:	
Name and Title of South Hook Contract Administrator for Project:	
Name and Title of South Hook General Services Contract Manager:	
Name and Title of South Hook Senior Environmental Engineer:	
Notes, amendments	

Section 2: Project Detail	
Location/s of work on site:	
Brief description of Project work that will generate wastes:	
Contract/Project commencement date:	
Estimated commencement date of work which generates Project waste	
Contract/ Project duration:	
Estimated completion date of work which generates Project waste:	
Notes, amendments	

Section 3: Monthly Waste Management Data

Please detail all waste transferred for each month of the Project and details of waste carriers, treatment and disposal facilities

Month:

WASTE DESCRIPTION	Date	Waste transfer Note WTN* Ref. No. Ref/ Ticket number	Waste Carrier (insert ref. No. from section 4)	EWC** Code	Destination of Waste (insert Ref. letter from section 5)	Reuse On Site / Reuse off site Recycled On Site / Recycled Off Site (for reuse on-site/ off-site Recycled sent to MRF (Recycled MRF) Recycled Off Site (WTE) Waste To Energy (Incineration with energy recovery) Disposed of to landfill Disposed of other than landfill (e.g. Incineration with no energy recovery)	Net Weight (Tonnes)
Cardboard	*12/3/12*	*16055*	*1*	*15 01 01*	*A*	*Recycled Off site*	*0.35*
Mixed waste	*18/3/12*	*11343*	*1*	*17 09 04*	*A*	*Recycled MRF & Disposed of to Landfill*	*2.5*

Contractor Waste Management Data

Form	FM.06C.01.000.08
Revision	00
Parent Document	SM.06C.01.000.00

Section 3: Monthly Waste Management Data

Please detail all waste transferred for each month of the Project and details of waste carriers, treatment and disposal facilities

Month:

WASTE DESCRIPTION	Date	Waste transfer Note WTN* Ref. No. Ref/ Ticket number	Waste Carrier (insert ref. No. from section 4)	EWC** Code	Destination of Waste (insert Ref. letter from section 5)	Reuse On Site / Reuse off site / Recycled On Site / Recycled Off Site (for reuse on-site/ off-site / Recycled sent to MRF (Recycled MRF) / Recycled Off Site (WTE) Waste To Energy (Incineration with energy recovery) / Disposed of to landfill / Disposed of other than landfill (e.g. Incineration with no energy recovery)	Net Weight (Tonnes)
Scrap metals	*22/3/12*	*1556*	*1*	*17 04 07*	*A*	*Recycled Off site*	*4.0*

* WTN is Waste Transfer or Consignment note for hazardous waste

** EWC is European Waste Code

Section 4: Schedule of Waste Carriers

Complete the details of waste carriers used and reference them against the waste data information in section 3

Reference Number (to insert in Section 3)	Waste Carriers Name and registered address	Carriers Licence No. (issued by Environment Agency)	Renewal date
1	*Waste Carrier Ltd* *Address 1*	*Xxx/ yyy*	*12/12/2012*
2			

	Contractor Waste Management Data	Form	FM.06C.01.000.08
		Revision	00
		Parent Document	SM.06C.01.000.00

Section 5: Schedule of disposal & treatment facilities used

Complete the details of treatment and disposal facilities used and reference them against the waste data information in section 3. Note: The Primary facility is the facility to which the waste is initially taken. Waste maybe transferred subsequently to other facilities for further treatment and/ or disposal.

Reference Number (to insert in Section 3)	Primary Waste Site (Facility Name and Address to which the waste is initially taken)	Waste Management Permit/ Licence/Exemption No. (issued by Environment Agency)	Type of Facility (see notes *1 below)
A	*Waste recycling Ltd* *Address*	*xxxxxx*	MRF/ WTS
B			

Note: *1

MRF	Materials Recycling Facility
WTS	Waste Transfer Station
ARF	Aggregate Recycling Facility
Inert LF	Inert Landfill
LF	Landfill
EFW	Energy from Waste
I	Incineration

Section 6: Declaration

South Hook and the Vendor / Supplier Principal Contractor will take all reasonable steps to ensure that:

(a) All waste from the site is dealt with in accordance with the waste duty of care in Section 34 of the Environmental Protection Act 1990 and the Environmental Protection (Duty of Care) regulations 1991.

(b) Materials will be handled efficiently and waste managed appropriately following Best Available Techniques.

Vendor / Supplier/ Principal Contractor Representative

Signature: ..... Name: ..... Date: .....

South Hook LNG Contract Administrator

Signature: ..... Name: ..... Date: .....

IMPORTANT NOTES
Evidence of waste carrier registration and waste transfer or hazardous waste consignment notes for each removal of waste should be provided, and filed and cross-referenced.

Please complete form on a monthly basis and attach copies only of all Duty Of Care Waste transfer Note WTN tickets (as listed in Section 3) and forward to the South Hook LNG General Services Contract Manager as soon as possible and at the latest by the 7th day of the following month.
Vendor/ Supplier/ Principal Contractor to retain and file all original WTN tickets.

..... END OF DOCUMENT .....

Appendix C
DRAINAGE SYSTEMS OPERATING PROCEDURES

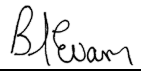
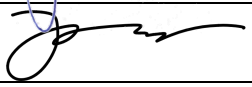
Drainage Systems Operation, Maintenance, Inspection & Sampling

Criticality:	**MEDIUM**
Document No.:	**PE.06C.01.001.00**

System Administrator			
Title:	Senior Environmental Engineer	Name:	Shane Evans
System Owner			
Title:	Technical Services Manager	Name:	Zoltan Hazos

Rev. No.	Effective Date	Description	Revalidation Date
01	11/02/2021	Criticality Assessment Review Update	11/02/2024

Approvals

Action	Name	Position	Signature	Date
Issued By	Shane Evans	Senior Environmental Engineer		10/02/2021
Reviewed by	Alana Harrison	Quality Technician		04/02/2021
Accepted by	Ghislaine Davies	Business Services Co-ordinator		11.02.2021
Approved by	Zoltan Hazos	Technical Services Manager		08/02/2021

Revision History

Rev. No.	Date	Description
00	08/10/2020	Quality Journey Update: PE.06A.00.127, WA.06A.00.006, WA.06A.00.009, WA.06A.00.010, WA.06A.00.011 combined and transferred from System 06A.
01	11/02/2020	Criticality Assessment Review Update

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Appendices

Figures

Tables

1. Overview

1.1 Purpose

The purpose of this procedure is to describe how SHLNG will ensure that:

- All site drainage is operated and maintained safely and effectively to avoid breaching the SHLNG Environmental Permit requirements.
- Monitoring data is collected to allow SHLNG to demonstrate continued compliance with the regulatory EPR environmental permit to operate.

The drainage systems at SHLNG comprise the following:

- Site drainage system - that conveys surface and groundwaters.
- Process effluent drainage systems.
- Foul sewerage drainage systems.

The drainage systems are designed to work in all operating and weather conditions. The site drainage system is formed from several elements that are designed to collect, control, direct, treat and finally discharge site drainage water. The surface site drainage comprises precipitation falling on site (surface water run-off) and groundwater springs that rise on site. The process site drainage comprises water generated by the Submerged Combustion Vaporisers (SCV's).

1.2 Scope

This document covers the operation and maintenance of the site drainage systems, which includes the site surface water drainage system, the process water drainage system and the foul sewerage drainage system.

1.3 Hazards and Mitigations

Hazards

Caution: Inert and toxic gasses such as Nitrogen and Hydrogen Sulphide (H2S) may be present within the sewerage and drainage systems at SHLNG.

This Work Aid **Does Not** cover any Confined Space working, **Do Not Enter or Partially Enter** any part of the sewerage and drainage systems whilst performing the duties of this Work Aid.

The key hazards and relevant mitigations for this document are listed in the table below:

Hazards	Mitigations
• Hazards associated with Loss of Primary Containment	• **Condition 3.2.3** of the EPR Environmental permit requires that *'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'.
• Caustic (NaOH) substances (including sodium hydroxide solution).	• Job Safety Analysis (JSA) Risk Assessment Method Statements, Safety Data sheets (SDS) and associated Control of Substances Hazardous to Health (COSHH) assessments • Particular care and vigilance should be taken in areas where caustic materials are stored. • If in doubt, personnel should contact the Process Supervisor.
• Site drainage effluent, which may potentially contain acidic (low pH) SCV produced water.	• Job Safety Analysis (JSA) Risk Assessment Method Statements. • **Note:** pH is usually >6 and <9 pH units.
• Nitrogen	• Site Life Saving Rules, PTW and Job Safety Analysis (JSA) Risk Assessment Method Statements • Personnel are made aware of the potential for nitrogen and/or other asphyxiates gases present within the sewerage and drainage systems at SHLNG, especially when checking sealed tanks, catch pits and sewers; and must also exercise caution whenever conducting any olfactory odour assessment on site. Approved safe systems of work must be followed at all times.
• Oils/ greases	• Job Safety Analysis (JSA) Risk Assessment Method Statements, Safety Data sheets (SDS) and associated Control of Substances Hazardous to Health (COSHH) assessments. • Site Life Saving Rules, PTW.
• Methane	• Site Life Saving Rules, PTW and Job Safety Analysis (JSA) Risk Assessment Method Statements. • **Do Not Enter or Partially Enter** any part of a tank or interceptor unless a valid Confined Space Entry Certificate has been issued with your Permit to Work.
• Confined Space	• Site Life Saving Rules, PTW and Job Safety Analysis (JSA) Risk Assessment Method Statements. • **Do Not Enter or Partially Enter** any part of a tank or interceptor unless a valid Confined Space Entry Certificate has been issued with your Permit to Work. • Do Not Enter or Partially Enter any part of the sewerage and drainage systems whilst performing the duties of this document.
• Poisonous, noxious, polluting matter, including solid wastes, must not be allowed to enter any surface waters, drains/ditches or land/ groundwater	• Site Life Saving Rules, PTW. • Job Safety Analysis (JSA) Risk Assessment Method Statements, Safety Data sheets (SDS) and associated Control of Substances Hazardous to Health (COSHH) assessments. • Such materials must be contained and removed to a suitably permitted recovery and/or disposal facility off-site, in accordance with SHEMS 6C Environmental Management.
• Surface water drainage system - Diesel Oil	Site Life Saving Rules, PTW, Job Safety Analysis (JSA) Risk Assessment Method Statements, Safety Data sheets (SDS) and associated Control of Substances Hazardous to Health (COSHH) assessments. • All operatives are suitably trained to handle any substance(s) identified within any COSHH assessments.

• Working with Sewage.	• Site Life Saving Rules, PTW and Job Safety Analysis (JSA) Risk Assessment Method Statements • Where necessary, any activities carried out are performed under the Permit to Work
• Inert or flammable gasses such as Nitrogen and Methane may be present within drainage systems, including tanks and oily water interceptors at SHLNG.	• Site Life Saving Rules, PTW and Job Safety Analysis (JSA) Risk Assessment Method Statements • All operatives are wearing the appropriate PPE in accordance with South Hook procedure Safety Orientation (SM.05B.02.000.00) and the specific SHLNG JSA
• Hazardous material may be present within the interceptors and sealed tanks – Diesel – Oil & Grease	• Site Life Saving Rules, PTW where required • Job Safety Analysis (JSA) Risk Assessment Method Statements, Safety Data sheets (SDS) and associated Control of Substances Hazardous to Health (COSHH) assessments • All operatives are suitably trained to handle any substance(s) identified within any COSHH assessments.
• Static electricity	• Vacuum Truck or Bowser earthed' before starting by following SHLNG procedure Road Tanker Earthing (OP.06A.00.024.00)

Table 1. Hazards and Mitigations

2. Responsibilities

2.1 Operations Department

The Operations Department will be responsible for the following:

- Performing the tasks defined in Table 2 Responsibilities by Drainage System.
- Utilising checklists, storing records, and informing other departments of findings, as appropriate.

2.2 Business Services Department

The Business services Department will be responsible for the following:

- Providing advice on operation of site drainage systems.
- Performing the tasks defined in Table 2 Responsibilities by Drainage System.
- Utilising checklists, storing records, and informing other departments of findings, as appropriate.

2.3 Technical Services Manager

The Technical Services Manager is responsible for:

- Ensuring that the tasks specified within this document are adequately resourced, are fully supported and performed in a legally compliant manner.
- Ensuring the sampling tasks detailed in this procedure are undertaken as when necessary, as specified in the relevant Contract(s) and/or as otherwise instructed/ agreed.

2.4 Laboratory

The laboratory will be responsible for sampling water emissions from the Terminal in accordance with the Environmental Permit requirements, as described in the SHLNG Environmental Management Manual (SM.06C.01.000.00) and the SHLNG Sampling Emissions to Water section of this procedure.

2.5 General Services Contract Owner

The SHLNG Business Services Manager is the General Services Contract Owner and is responsible for:

- The provision of a Waste Management service which is legally compliant, as outlined in SHEMS 6C Environmental Management.
- Ensuring that adequate and suitable resources are in place and that the tasks specified within this document are fully supported and performed in a legally compliant manner.

2.6 General Services Contractor (Waste)

The General Services Contractor is responsible for:

- Ensuring that the Waste Management, Facilities and Security duties of SHLNG's General Services Contract are performed in a legally compliant manner and that the specific tasks identified in this document are only carried out by trained and competent personnel.
- Ensuring that an approved waste contractor is available to carry out the activities detailed in this procedure, where necessary.
- The routine checking and emptying of the Hazardous Waste Store bunded area and organising waste and drainage sub-contractors and the Waste Coordinator with regard to the removal of hazardous wastes and contaminated liquids from the Terminal.

2.7 Process Superintendent

The Process Superintendent is responsible for ensuring that only trained and competent process personnel are permitted to perform the activities detailed in this procedure.

2.8 Maintenance Superintendent

The Maintenance Superintendent is responsible for ensuring that the maintenance tasks specified within this document are adequately resourced, are fully supported and performed in a legally compliant manner.

The Maintenance Superintendent is responsible for ensuring adequate maintenance of the facilities and pumps within the sewage pumping station according to the SHLNG Terminal approved maintenance strategy.

2.9 Process Supervisor

The Process Supervisor is responsible for implementation of appropriate Operator Surveillance Routines, the reporting of and acting upon reports of repairs required to the pollution prevention infrastructure and potential pollution within site drainage systems, bunds or during inspection and/or empting activities. The Process Supervisor will also be responsible for ensuring that an appropriate SHE has been entered for all environmental SHE events.

2.10 Process Operator

The Process Operator is responsible for ensuring that bunds are emptied, as required, in a legally compliant manner, including where necessary the stopping of work due to suspected pollution.

2.11 Senior Environmental Engineer

The Senior Environmental Engineer is the SHEMS Administrator for this document and as such will ensure that this document is periodically reviewed and amended in compliance with SHEMS 4A Document and Information Management.

The Senior Environmental Engineer is responsible for:

- Providing advice on matters of compliance with the relevant legislation, and conditions contained in the EPR Environmental Permit, the Site Lease Agreement and the Planning Permissions issued by Pembrokeshire County Council and Pembrokeshire Coast National Park Authority.

2.12 Responsibilities by System

Drainage System	Responsible Contract	Responsible Department
Oil interceptors	General Services Contract (Waste)	Business Services
Cesspools	General Services Contract (Waste)	Business Services
Sealed tanks	General Services Contract (Waste)	Business Services
Bund emptying	Operations Department (unless contaminated)	Operations (if contaminated, General Services Contract (Waste))
Foul sewerage	General Services Contract (Waste)	Business Services
Surface water drainage system (including V-ditches, channels catch pits, gullies and drains)	General Services Contract (Waste)	Business Services
Sewage pumping station	Maintenance Section	Operations
Pumps, generators and valves	Maintenance Section	Operations
Jetting (on request)	General Services Contract (Waste)	Business Services
Any waste removal (on request)	General Services Contract (Waste)	Business Services

Table 2. Responsibilities by Drainage System

3. Processes and Procedures

3.1 Prerequisites

Environmental Permit Requirements

Water discharges from the Terminal into the Milford Haven Waterway are controlled by strict conditions set in the Environmental Permit, as described in the SHLNG Environmental Management Manual (SM.06C.01.000.00), Sections:

- Environmental Controls
- Environmental Monitoring

The Environmental Permit conditions must be complied with at all times and any problems must be reported immediately via the SHE incident reporting system, and as described in the SHLNG Environmental Management Manual - Section 'Environmental Reporting and Notification'.

This document also serves to ensure compliance with, and implement conditions contained in the EPR Environmental Permit, the Site Lease Agreement and the Planning Permissions issued by Pembrokeshire County Council and Pembrokeshire Coast National Park Authority.

3.2 Operating and Maintenance of Site Drainage Systems

3.2.1 System Description

Discharges associated with site surface water drainage and process drainage systems are regulated by conditions specified in the Environmental Permit and summarised in the table 3 below. Monitoring of specified parameters is undertaken in accordance with the SHLNG Environmental Management Manual - Section 'Environmental Monitoring'.

Outlet	Description
W1	Drainage from site, ground water and stream running through the site.
W2	Neutralised SCV effluent.

Table 3. Summary of the permitted discharges to water from the South Hook Permitted Installation

The site drainage systems are discussed in the following subsections:

- Surface water drainage system including pipes, valves, interceptors, sealed tanks, bunds, V-ditches, channels, catch pits (CPs) and gullies.
- The attenuation basin.
- Skim pond.
- Process water drainage system.
- Foul sewerage drainage system including cesspools, pipework and the sewage pumping station.

3.2.2 Surface Water Drainage System

The permanent water systems consists of drainage channels, v-ditches, catch pits and gullies, interceptors, the attenuation basin, valves and associated piped infrastructure.

The system collects all surface water runoff via a gravity system comprising open channels and culverts.

All site flows are passed to the attenuation basin where they pass a one-way valve (Tideflex) upon entry to the basin.

Under normal operation, flows will pass through the low flow channel at the attenuation basin invert and out to the Haven outfall via the skim pond bypass pipeline.

Catch pit (CP S6), located immediately downstream of the attenuation basin, has one penstock valve (PV1) for the main discharge of surface waters exiting the attenuation basin, and one penstock valve (PV2) that may feed the skim pond.

The penstock valve that feeds the skim pond (PV2) remains permanently closed unless the skim pond requires an increase in level due to drought conditions.

The penstock valve (PV1) for the main discharge of surface waters exiting the attenuation basin to the Haven will remain open, unless there is an emergency event when the penstock may be closed. This will allow surface waters (and potentially firewater) to be stored in the attenuation basin for inspection/ sampling prior to controlled discharge to the Haven via the skim pond bypass line.

The surface water drainage system consists of channels constructed from concrete sections with varying carrying capacities to capture surface waters that originate from precipitation falling on site (surface water run-off) and groundwater springs that rise onto the site surface and flow into the channels. The channels drain through a series of catch pits and oil interceptors.

Surface waters then flow into the attenuation basin and subsequently into the Milford Haven Waterway discharging at permit Emission Point Ref. W1 (see Fig. 1).

Figure 1. Emission Point Ref. W1 into Milford Haven Waterway

3.2.2.1 Oil Interceptors

There are thirteen oil interceptor tanks on site which, in the event of a spill, should retain oil and prevent the contaminant from flowing through the rest of the surface water drainage system and into the Milford Haven waterway below. The interceptors are located strategically via risk assessment such that they should contain any significant spill of oil, primarily from the potentially higher risk areas on site. They routinely inspected for any evidence of any oil contamination and serviced as required to ensure they will function correctly, as required.

Further details of the location, operation and maintenance of the interceptor tanks are provided in the section of this procedure on Inspection and Emptying of Tanks and Interceptors on Oily Water Drainage Systems.

3.2.2.2 Sealed Tanks

There are six sealed tanks on site, located strategically via risk assessment such that they should contain any significant spill of oil, primarily from the sub-stations. The tanks are routinely inspected to ensure that they remain in useable condition, to determine the water level (as rainwater can enter the tanks) and if

any contamination is present. The tanks are inspected and emptied as described in the section of this procedure on –on Inspection and Emptying of Tanks and Interceptors on Oily Water Drainage Systems.

3.2.2.3 V-ditches, Channels, Catch Pits and Gullies

The V-ditches, channels, catch pits and gullies forming the surface water drainage network must remain free from debris to ensure that surface water is channelled to the W1 discharge point, in accordance with the drainage system design philosophy of the site. The monitoring and maintenance of this system is described in the section of this procedure on Sewerage and Site Drainage System Maintenance.

3.2.2.4 Bunds

Impermeable concrete bunds designed to contain environmentally harmful and hazardous liquids (such as diesel or caustic) will capture any spillages or leaks and prevent potentially contaminated liquids from entering the surface drainage system and/or unpaved ground. The bunds are emptied as described in the section of this procedure on Bund Emptying.

3.2.2.5 Valves, Temporary Generators and Pumps

Several valves are located at various positions within the surface water drainage system to facilitate water management (see site drainage drawing). Periodic maintenance of these valves and any temporary generators or pumps that may be present on site will be performed in accordance with the section of this procedure on Sewerage and Site Drainage System Maintenance.

3.2.3 Attenuation Basin

Surface and ground waters are channelled into the attenuation basin where they can be controlled, if required.

The attenuation basin is regularly inspected, to ensure it is capable of performing its design function, as described in the section of this procedure on Sewerage and Site Drainage System Maintenance.

3.2.4 Skim Pond

The skim pond was originally created and operated by the Esso Petroleum Co. Ltd refinery, which previously occupied the site.

Legacy oil contamination, caused by the previous occupants of the site, is contained in the underlying skim pond sediments and must not be disturbed. As part of the leaseholder agreement, the skim pond must remain working in a condition that does not further impact current understanding of associated ground contamination. This is principally undertaken through maintaining residual water levels and not disturbing the skim pond, thereby preventing the release of any possible historic contaminants from the pond into the Milford Haven waterway.

A weir arrangement is located at the exit point of the skim pond waters that indicates whether water levels are above or below the maintained level. Typically, the natural runoff into the surrounding valley flowing

into the skim pond ensures that an adequate water level is maintained. However the skim pond may need to be topped up with clean site drainage waters should water levels drop (for example during extreme drought conditions), through operation of a penstock valve (PV2) at the north of the skim pond (north of the reed beds), see section of this procedure on Surface Water Drainage System.

The inlet pipeline to the skim pond is restricted (maximum water flow of 16 litres per second) to minimise the potential for sediment disturbance. The skim pond discharge passes through a penstock valve located at the south end, just downstream of the outlet weir, which allows the skim pond to be isolated if necessary.

3.2.5 Process Water Drainage System

Process water is generated through the operation of SCVs and can potentially have low pH values caused by combustion gases. Caustic is used to neutralise the waters generated by SCVs and this is in the form of sodium hydroxide introduced at the individual SCVs water baths prior to discharge of wastewater. The process waters pass through neutralisation basins and along a dedicated pipeline into the Milford Haven Waterway via the firewater caisson on the jetty (emission point ref./ release point W2 in the Environmental Permit). pH monitors are in place in the individual SCVs water baths, the respective neutralisation basins and on the combined final effluent, to ensure the water is adequately neutralised prior to release and a permitted pH level of >6-<9 pH units is maintained.

3.2.6 Foul Sewerage System

The site sewerage system consists of 3 separate cesspools and a mains foul sewerage system leading to a sewage pumping station located adjacent to (west of) the Central Control Building (CCB), which pumps sewage to the Herbrandston village Waste Water Treatment Plant (WWTP).

The 3 cesspools are located as follows:

- Jetty Control Room
- Jetty Gatehouse
- Local Instrument Rooms (LIR 1 & 2)

The Administration Building, Warehouse, Workshop and Central Control Room are all served by the mains foul sewerage system.

The General Services Manager is responsible for ensuring the emptying the sewage tanks (cesspools) on site when informed by the Operations Department that the tank level is such that it requires emptying. There are also alarms within the sewage tanks so that a 70% level triggers the alarm and the appropriate arrangements can be made for the tank to be emptied. Further details are provided in the SHLNG Environmental Management Manual - Section ‘Waste Management’ and section of this procedure on Sewerage and Site Drainage System Maintenance. The sewage pumping station is located adjacent to (west of) the Central Control Building (CCB) and sewage from all buildings north of this location drain to this point. The Maintenance Department inspects and maintains the pumping station and lift pumps, to ensure the system remains in good working order. The mains sewerage system will be visually inspected by the Business Services Section on a periodic basis using CCTV and blockages cleared, by jetting where necessary. Jetting can be arranged, on request, through the General Services Manager.

Any repairs required to the structure of the foul sewer drainage system may be arranged via the Maintenance Section.

Further details and information on maintenance of the foul sewerage system are set out in the section of this procedure on Sewerage and Site Drainage System Maintenance.

3.3 Sampling Emissions to Water

The purpose of this section is to describe the safe and effective method South Hook will use to ensure that water quality samples are taken from the permitted site surface water (W1) and process effluent (W2) sample emission points and then transported to the laboratory for analysis. This is undertaken to ensure compliance with the site's Environmental Permit.

All site surface water including rainwater and groundwater is collected by the site drainage system. Oil water separators in this system remove potential oils that may have entered into the system before the surface water is discharged, first into a storm water attenuation basin and then directly to the Milford Haven waterway at permitted discharge point W1.

Effluent from the SCVs is neutralised in the individual SCV water baths and conveyed to one of two neutralisation holding basins, one for each phase of SCV's, where the effluent is held pending discharge. The effluent is then intermittently pumped via a dedicated pipeline along the jetty trestle to permitted discharge point W2.

Scope

This section applies to experienced personnel involved in taking environmental water samples in approved containers and transporting to the laboratory.

3.3.1 Prerequisites

Precautions

The following precautions should be taken before attempting to take any water samples:

- Personnel must wear the appropriate PPE in accordance with SHLNG's Permit to Work Manual (SM.06B.02.000.00) and Safety Orientation procedure (SM.05B.02.000.00). If necessary this must include a personal gas detector to give personnel advance notice of potential danger and must include Nitrile protective gloves to minimise contact with the water and risk of contracting Weils disease.
- Personnel must follow the relevant Site Rules, Job Safety Analysis (JSA) Risk Assessment Method Statements and be trained in obtaining water samples.
- Ensure that all personnel in the vicinity of the sample point are made aware of the sampling operation taking place and where applicable request non-essential personnel to leave the immediate vicinity.
- Personnel working alone must ensure they adopt safe lone working practices.
- Where necessary ensure appropriately modified vehicles and intrinsically safe (I.S.) equipment are used in accordance with SHLNG Permit to Work Manual (SM.06B.02.000.00).

Caution: Although the water sample is unlikely to be contaminated as a precautionary measure personnel must not expose themselves to the water being sampled.

Nitrile gloves must be worn to ensure the sampler does not contaminate the water sample.

Environment

The work is being conducted directly at the environmental emission points and any contamination of the water stream could potentially lead to a breach of the Environmental Permit.

Any evidence of water pollution should be reported immediately to the Process Supervisor and Senior Environmental Engineer **and** via the SHE incident reporting system.

Pre-requisites

Before sampling is carried out, the sampler should confirm that sampling bottles are clean and the correct type.

It is a requirement of SHLNG Environmental Permit to sample emissions to water (W1 and W2) on a daily, weekly and monthly basis (as specified).

Samplers must carry out a Safety STAR - (Stop, Think, Act, Review) dynamic safety risk assessment before undertaking the task(s).

3.3.2 Manual Sampling of Site Surface Water W1

Appendix 3 provides a flowchart illustrating the procedure for undertaking W1 sampling. This should be referred to when carrying out the following steps:

Step	Responsible	Action	Complete
1	Process Operator / Laboratory Operative	It is a requirement of our Environmental Permit to sample emissions to water (W1 and W2) on a daily, weekly and monthly basis, as detailed in the laboratory contract. This is to be undertaken by Laboratory personnel in accordance with Site Rules and Job Safety Analysis (JSA) Risk Assessment Method Statements. Laboratory to liaise with CCR to provide exact details of sampling requirements and schedule and to collect the required numbers and types of sample bottles and sampling equipment. The following sampling dates and frequencies are required: • Daily samples to be taken each day. • Weekly samples (for TOC) • Monthly samples to be taken as close to the beginning of the month as possible. • Please liaise with laboratory to arrange sample receipt from the off-site laboratory, for the monthly samples	❒
2	Process Operator / Laboratory Operative	Undertake a pre-works check of monitoring equipment (i.e. PPE, nitrile gloves, modified vehicles, intrinsically safe equipment) ensuring compliance with the site's Site Rules, Permit to Work (PTW) Procedure and Job Safety Analysis (JSA) Risk Assessment Method Statements.	❒
3	Process Operator / Laboratory Operative	The permitted sample point for site drainage effluent (W1) is the terminal manhole (locally known as catch pit 12 (CP12)). If the sample point at catch pit 12 is obstructed/ unavailable, the sample may be taken from the alternative sample point at catch pit 11. The sample point used must be noted on the sample label. Correct tools and manual handling techniques must be employed in lifting any manhole covers. Undertake a pre-works check of the location from which the W1 sample will be taken. This will either to be taken from: A. W1 Routine Permitted Sample Point - catch pit 12 (CP12); or B. W1 Alternative Sample Point – Catch pit 11 (CP11). A location plan and photographs of the sampling points are provided in Appendices 5, 6 and 7.	❒

Step	Responsible	Action	Complete
4	Process Operator / Laboratory Operative	Prior to sampling please ensure that it is safe to do so. • Pre and post sampling information is required. A label should be attached to the bottle before sampling with the following details: • Sample number. • Date and time of sampling. • Source of sample (designated in sufficient detail to enable anyone to collect a second sample from the identical spot from which the first sample was taken) • Temperature of sample at sample point. • Results of any field tests made on the sample. • Name of sampler. • Sampler comment / observation. • Any evidence of water pollution (visual and/or olfactory) If a label cannot be attached, mark sample bottle using indelible ink. *Note: Ensure the sample bottles are clean prior to using.*	❒
5	Process Operator / Laboratory Operative	The following sample measures are required: • **Daily Samples**: 1 x 500ml glass bottles, 2 x 500ml glass bottles where 1L are required for testing – to be filled to the neck of the bottle. • **Monthly Samples**: take an extra 3 x 1L plastic bottles (which is retained in case of questions and queries).For BOD testing 500ml brown glass bottles are to be used.	❒
6	Process Operator / Laboratory Operative	**A - Routine Permitted Sample Point - Catch pit 12** **B - Alternative Sample Point - Catch pit 11** The sampler does NOT need to cross safety barriers if provided Carefully lower the sampling bottle, into the flow of water. *Note: This can be done using a suitable sampling cage suspended from a 5m stainless steel wire (to be provided by laboratory).* Ensure the sample bottle collects flowing water and does not scrape sediment from the bottom or side walls of the catch pit. Retrieve the bottles and seal.	❒
7	Process Operator / Laboratory Operative	Thoroughly dry the sample bottle and attach a label. This should be completed using indelible ink. The label must include the following information: • Sample number. • Date and time of sampling. • Source of sample (designated in sufficient detail to enable anyone to collect a second sample from the identical spot from which the first sample was taken). • Temperature of sample at sample point. • Results of any field tests made on the sample. • Name of sampler. • Sampler comment / observation. • Any evidence of water pollution (visual and/or olfactory).	❒

Step	Responsible	Action	Complete
8	Process Operator / Laboratory Operative	Make the area safe by clearing away any waste materials.	❒
9	Process Operator / Laboratory Operative	Place the sample in the storage container and return to the laboratory. Complete chain of custody form.	❒
10	Laboratory Operative	Process the sample according to laboratory procedure.	❒
11	Laboratory Operative	Update PIMS ExaQuantum database.	❒
12	Laboratory Operative	Report all results to SHLNG mailing list (i.e. Operations and Technical Services departments) within agreed timescales.	❒

3.3.3 Manual Sampling of Process Waters W2

Appendix 4 provides a flowchart illustrating the procedure for undertaking W2 sampling. This should be referred to when carrying out the following steps:

Step	Responsible	Action	Complete
1	Process Operator / Laboratory Operative	It is a requirement of our Environmental Permit to sample emissions to water (W1 and W2) on a daily, weekly and monthly basis, as detailed in the laboratory contract. This is to be undertaken by Laboratory personnel in accordance with Site Rules and Job Safety Analysis (JSA) Risk Assessment Method Statements. Laboratory to liaise with CCR to provide exact details of sampling requirements and schedule and to collect the required numbers and types of sample bottles and sampling equipment and enquire which SCV Train has been operational. Please liaise with operations to ensure, as far as is reasonably practicable, that both RO (Neutralisation) basins are discharging at the time of sampling if the routine permitted sample point and alternative sample point SE of the BOG House are being used. This ensures a representative sample is obtained. The following sampling dates and frequencies are required: • Daily samples to be taken each day • Monthly samples to be taken as close to the beginning of the month as possible. • Please liaise with laboratory to arrange sample receipt from the off-site laboratory, for the monthly samples.	❒
2	Process Operator / Laboratory Operative	Undertake a pre-works check of monitoring equipment (i.e. PPE, nitrile gloves, modified vehicles, intrinsically safe equipment) ensuring compliance with the site's Site Rules, Permit to Work (PTW) Procedure and Job Safety Analysis (JSA) Risk Assessment Method Statements.	❒

Step	Responsible	Action	Complete
3	Process Operator / Laboratory Operative	The routine permitted sample point for W2 is a dedicated sampling tap, which is on the W2 process effluent discharge pipeline, beneath the jetty trestle just inside (north of) the high security green fence adjacent to Littlewick Bay. If the sampling tap for W2 is obstructed/ unavailable, the sample may be taken from the alternative sample points, as set out below: • W2 Alternative Sample Point – tap located downstream of the downstream pH/ temperature continuous analyser (located SE of the BOG compressor house), or if this sample point is unavailable: • Neutralisation Basin 1 (when train 1 SCVs are to be operational that day) - W2 Upstream Alternative Sample Point, or: • Neutralisation Basin 2, (when train 2 SCVs are to be operational that day) - W2 Upstream Alternative Sample Point, or: • Neutralisation Basins 1 and 2, (when train 1 and 2 SCVs are to be operational that day) - W2 Upstream Alternative Sample Point. The sample point used must be noted on the sample label. Undertake a pre-works check of the location from which the W2 sample will be taken A location plan and photographs of the sampling points are provided. in Appendices 5, 6 and 7.	❒
4	Process Operator / Laboratory Operative	Prior to sampling please ensure that it is safe to do so. Pre and post sampling information is required. A label should be attached to the bottle before sampling with the following details: • Sample number. • Date and time of sampling. • Source of sample (designated in sufficient detail to enable anyone to collect a second sample from the identical spot from which the first sample was taken) • Temperature of sample at sample point. • Results of any field tests made on the sample. • Name of sampler. • Sampler comment / observation. • Any evidence of water pollution (visual and/or olfactory) If a label cannot be attached, mark sample bottle using indelible ink. *Note: Ensure the sample bottles are clean prior to using.*	❒
5	Process Operator / Laboratory Operative	The following sample measures are required: • **Daily Samples**: 1 x 500ml glass bottles, 2 x 500ml glass bottles where 1L are required for testing – to be filled to the neck of the bottle. • **Monthly Samples**: take an extra 3 x 1L plastic bottles (which is retained in case of questions and queries).For BOD testing 500ml brown glass bottles are to be used	❒

Step	Responsible	Action	Complete
6	Process Operator / Laboratory Operative	**A - Routine Permitted Sample Point** If safe, open the tap and allow water to run for approximately 30 seconds. This will ensure that the volume of the sample line is displaced prior to sampling. Fill the bottle as required. Seal the bottles and ensure tap is securely closed. **B - W2 Alternative Sample Point** – tap located SE of the BOG compressor house As for A above **B - Alternative Upstream Sample Points (Neutralisation Basins 1 & 2)** The sample should be retrieved approximately half way along the handrail, on the north-side of the basin. Remaining outside the safety handrail, carefully lower the sample bottle into the water. This can be done using the sampling cage suspended on a 5m stainless steel wire. Ensure water sample is not contaminated by debris from walls or base, on extraction of the sample bottle from neutralisation basin. Retrieve bottle and replace cap.	❒
7	Process Operator / Laboratory Operative	Thoroughly dry the sample bottle and attach a label. This should be completed using indelible ink. The label must include the following information: • Sample number. • Date and time of sampling. • Source of sample (designated in sufficient detail to enable anyone to collect a second sample from the identical spot from which the first sample was taken) • Temperature of sample at sample point. • Results of any field tests made on the sample • Name of sampler. • Sampler comment / observation. • Any evidence of water pollution (visual and/or olfactory).	❒
8	Process Operator / Laboratory Operative	Make the area safe by clearing away any waste materials.	❒
9	Process Operator / Laboratory Operative	Place the sample in the storage container and return to the laboratory. Complete chain of custody form.	❒
10	Laboratory Operative	Process the sample according to laboratory procedure.	❒
11	Laboratory Operative	Update PIMS ExaQuantum database	❒
12	Laboratory Operative	Report all results to SHLNG mailing list (i.e. Operations and Technical Services departments) within agreed timescales.	❒

3.4 Bund Emptying

The purpose of this section is to provide operatives with an instruction on how to safely and effectively inspect and empty bunds of non-contaminated rainwater and contaminated material at the terminal.

Tank or Area Bunds are constructed so that they provide containment of any unintended escape of liquids or materials from the Tank or Area that they protect. However, due to their construction they can also entrap rainwater, which must be periodically removed.

Scope

This section is applicable to all personnel involved in integrity checks and emptying of bunded areas and containers used for capturing liquids whose emission to water or land could cause pollution.

3.4.1 Prerequisites

Safety

Personnel exposure to hazardous material is not expected during the performance of this section however particular care and vigilance should be taken in areas where caustic materials are stored.

Caution:	Released caustic liquid can give rise to caustic gases. If in doubt, personnel should contact the Process Supervisor.

Environment

The work is conducted on bunds which are located upstream of environmental permit surface water emission point Ref W1 and process effluent emission point Ref. W2. Therefore, any contamination of the bund water could potentially lead to a breach of the environmental permit conditions, including Emission Limit Values (ELVs). A spill of oil would put Legal compliance at risk.

Precautions

Before attempting to empty any bund personnel must ensure that:

- It has been confirmed that the bund contents to be emptied are free of potential contaminating substances.

  Note: *Potential contaminating substances will usually be limited to the contents of the tank(s)/ containers stored within the bund that are to be emptied.*

- All operatives are wearing the appropriate PPE, referenced in the relevant Job Safety Analysis (JSA) Risk Assessment Method Statements
- All operatives are suitably trained to handle the substance(s) within the bund.
- Operatives are aware of the precautions detailed in a valid SDS for the product to be handled
- A Control of Substances Hazardous to Health (COSHH) assessment is required. The following hazardous material may be present within the process piping and tanks located within the bunds:
  - NaOH (caustic) in liquid form at >5-50%.
  - Diesel oil
  - Lubricating oil
  - Glycol

3.4.2 Checks Prior to Bund Emptying

Step	Responsible	Action	Complete
1	Process Operator	Inspect and assess as suitable for use the following equipment before bund emptying work commences: • Local safety shower • Local eyewash station • Spill kits ,	☐
2	Process Operator	Inspect and assess the area fully before bund emptying work commences including: • Storage tanks and associated pipe work and valves • Bund area • The drains in the proximity to and channels immediately upstream and downstream of the storage tanks and bunds. • The low point below ground drain sump serving the caustic tanker unloading area • Assess for evidence of leaks or pollution using appropriate **visual and olfactory assessment** (for oil) and pH testing **litmus paper** and/ or suitable pH meter (for caustic). • Surface water channels, drains and bund water should be free of any contamination and pH should be neutral (acceptable pH of between 6.5 and 8.5). If pollution is suspected or if in doubt call Process Supervisor.	☐
3	Process Operator	Inspect and assess the contents of the bund for oil by the following methods: • Visual – is there a significant sheen or visible presence of oil? There should be no visible oil droplets or accumulations of oil – if so the bund water should be deemed contaminated ***Note:*** *In poor lighting conditions, neat oil may look very similar to water, so checks should be conducted during daylight hours.* • Olfactory – is there an odour present? If significant odour, deem bund water as contaminated. ***Note:*** *If pollution is suspected or if in doubt call the Process Supervisor.*	☐
4	Process Operator	Inspect and assess the contents of the bund and the low point below ground drain sump serving the caustic tanker unloading area for **Sodium Hydroxide NaOH/ Caustic**: • pH test – does the pH level exceed 9? If so, deem as contaminated. ***Note:*** *The drain sump should only be emptied if it has been confirmed by pH testing that the accumulated waters are free from alkalinity. pH should be neutral (acceptable pH of between 6.5 and 8.5).* *If pollution is suspected or if in doubt call the Process Supervisor.*	☐

3.4.3 Emptying of Water within Bunded Area

Step	Responsible	Action	Complete
Caution: If there is evidence of contamination in the bund or in the low point below ground drain sump serving the caustic tanker unloading area, **DO NOT** empty into surface water drainage system and inform the Process Supervisor. ⚠ **Continuous supervision and monitoring is required during bund emptying operations.**			
1	Process Operator	If there is no evidence of contamination, empty water within a bunded area as follows: A) Rainwater accumulated in the bund or in the low point below ground drain sump serving the caustic tanker unloading area, should be emptied (via the bund drain sump valve if present) into the surface water drainage system. B) In the case of the jetty firewater pump diesel tank, the bund shall be emptied by positive lift pump pumping directly over the bund wall. ***Notes:*** • *For land based tanks/bunds the surface drainage systems discharge via the oil interceptor(s) located upstream of the attenuation basin. The attenuation basin also has shut off valves on the outlet, which can be used to isolate and contain surface water/ site drainage from entering the Milford Haven Waterway below.* • *Please note that the petrol oil interceptors will not be effective in retaining soluble chemicals such as caustic/ glycol.* • *Ensure tank bund and sump are fully drained and free from liquid/ debris* • *Ensure low point below ground drain sump at caustic tanker unloading area is clear and free from liquid and that the mesh drain grid cover is free of debris*	☐
2	Process Operator	During the Bund Empting: • **CONTINUALLY SUPERVISE**, observe and monitor bund emptying operations. • Check for leaks/ problems. ***Note:*** *If problems occur, stop bund emptying operations immediately and report to Process Supervisor.*	☐
3	Process Operator	⚠ **IMPORTANT:** When bund empting operation is complete **Close valve** on bund drain sump (if present).	☐

Step	Responsible	Action	Complete
4	Process Operator	On completion of bund emptying operation, inspect area fully, including: • Storage tanks and associated pipe work and valves. • Bunds • The drains in the proximity to and channels immediately upstream and downstream of the tanks and bunds. • Assess for evidence of leaks or pollution using appropriate visual and olfactory assessment (for oil) and pH testing litmus paper and/ or suitable pH meter (for caustic). • Surface water channels, drains and bund water should be free of any contamination and pH should be neutral (acceptable pH of between 6.5 and 8.5). ***Note:*** *If pollution is suspected or if in doubt, contact the Process Supervisor.*	☐

3.4.4 Guidance on Bund Contamination

Step	Responsible	Action	Complete
1	Process Supervisor	If contamination is present, contact the General Services Manager who will arrange for the contaminated bund/ sump waters to be disposed of offsite by the waste management contractor in accordance with the *Environmental Management Manual (SM.06C.01.000.00) - Waste Management*. ***Note:*** *The onsite vacuum tanker may be utilised to remove contaminated liquid into IBC's to aid removal offsite.* ***Condition 3.2.3*** *of the EPR Environmental permit requires that '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'.*	✓
2	Process Operator	If contamination is identified the Spill Control Procedure (PE.10A.01.005.00) should be used to: • Identify the level of spill that has caused the contamination and the appropriate corrective action(s) taken. • Arrange for the spill to be contained and the area to be cleaned of contamination. ***Note:*** *If pollution is suspected or if in doubt contact the Process Supervisor.*	☐
3	Process Operator	Inspect area fully after bund emptying operation is completed, including: • Storage tanks and associated pipe work and valves. • Bunds • The drains in the proximity to and channels immediately upstream and downstream of the tanks and bunds. • Assess for evidence of leaks or pollution using appropriate visual and olfactory assessment (for oil) and pH testing litmus paper and/ or suitable pH meter (for caustic). • Surface water channels, drains and bund water should be free of any contamination and pH should be neutral (acceptable pH of between 6.5 and 8.5). ***Note:*** *If pollution is suspected or if in doubt call Process Supervisor.*	✓

3.4.5 Hazardous Waste Store Area Bund

Step	Responsible	Action	Complete
1	General Services Team	The hazardous waste storage area is to be inspected periodically on a weekly basis and more frequently during periods of wet weather, if/ when an accumulation of water is present the Area Bund shall be emptied.	☐
2	General Services Team	Prior to emptying, the rainwater should be assessed for contamination using visual, odour (olfactory) and if necessary appropriate chemical tests.	☐
3	General Services Team	If there is no evidence of contamination, rainwater in the hazardous waste storage area bund should be emptied into the adjacent site surface water drainage system.	☐
4	General Services Team	Where contamination is identified the water should be removed and placed in 1000l IBC's for authorised disposal offsite, (in accordance with the Environmental Management Manual (SM.06C.01.000.00) - Waste Management) and the area cleaned of contamination.	☐
5	General Services Manager	Any emptying of bund water (contaminated or uncontaminated) shall be logged in the relevant records.	☐

3.5 Inspection and Emptying of Tanks and Interceptors on Oily Water Drainage Systems

This section provides guidance for identifying oily contamination in sealed tanks and interceptors on the oily water drainage systems and outlines the process for safely emptying the contents. It will also help assist in the reduction of any potential environmental impact and supports the section of this procedure on Operating & Maintenance of Site Drainage systems.

Surface water (including rainwater) at the Terminal is channelled and drained via **Oily Water Interceptors** and the attenuation basin/ skim pond to the South Hook (SHLNG) permitted emission point Ref. W1, which is the coastal discharge point at Littlewick beach to the south of the site.

Surface water at the sub-stations is collected in **Sealed Tanks, designed to contain firewater in the event of an incident.**

Note:	*Only clean water is permitted to flow into the Milford Haven Waterway, this is an Environmental Permit requirement.*

Periodic inspections and the removal of any oil or other contaminants which have accumulated within sealed tanks and oily water interceptors are to be carried out following the guidelines set out in this section.

Scope

This section is applicable to all personnel involved in the inspection and/or emptying of sealed tanks and interceptors used for oily water service at SHLNG.

3.5.1 Prerequisites

Safety

Caution:	If using a Vacuum Truck or Bowser, ensure vehicle is adequately 'earthed' before starting by following SHLNG procedure Road Tanker Earthing OP.06A.00.024.00

Personnel exposure to hazardous material is not expected during the performance of this section.

Contaminated water, effluents and/ or other matter **must** be removed to permitted recovery and/ or disposal sites off-site by suitably qualified and authorised waste management carriers/ contractors.

A Control of Substances Hazardous to Health (COSHH) assessment is required. The following hazardous materials may potentially be present within the interceptors and sealed tanks:

- Caustic (sodium hydroxide NAOH)
- Diesel oil
- Transformer oils
- Lubricating oils & Greases
- Glycol
- Miscellaneous chemicals used on site

Ensure SDS's COSHH assessments are current and available, as required.

Environmental

Caution: Poisonous, noxious, polluting matter, including solid wastes, must not be allowed to enter any surface waters, drains/ditches or land/ groundwater, instead such materials must be contained and removed to a suitably permitted recovery and/or disposal facility off-site, in accordance with SHEMS 6C Environmental Management.

The activities detailed within this section will be conducted on interceptors and sealed underground tanks that are located upstream of **Environmental Permit Surface Water Emission Point Ref. W1** and **Process Effluent Emission Point Ref. W2.** Therefore, any contamination of the water could potentially lead to a breach of our environmental permit Emission Limits Values (ELVs) unless managed appropriately. The two permitted emission points to water (W1 and W2) have oil and grease limits of "none visible", which have to be complied with at all times. A spill of oil would put Company's compliance with these statutory, legally binding limits at risk.

Precautions

STOP WORK If contamination of a tank or interceptor is suspected.

Contact the Process Supervisor immediately who will arrange for further Visual and/or testing to be carried out.

Before work commences ensure the following:

- All operatives are wearing the appropriate PPE in accordance with the specific SHLNG Job Safety Analysis (JSA) Risk Assessment Method Statements/ COSHH assessment
- All operatives are suitably trained to handle the substance(s) within the tank/ interceptor
- Where necessary, any activities carried out are performed under the Permit to Work (SM.06B.02.000.00).
- If in doubt contact the Process Supervisor

3.5.2 Inspection Regime of Sealed Tanks/Oily Water Interceptors

Step	Responsible	Action
1	General Services Manager/ General Services Contractor	Regular periodic visual and odour inspections should take place for all sealed tanks/ oily water interceptors on oily water drainage systems. These inspections should be every 6 months as a minimum and after any significant storm event. In addition to these inspections, periodic routine cleaning of the interceptors should be carried out in accordance with the routine maintenance guidelines in Appendix 13 ***Note:*** *A list and Site Plan of all Sealed Tanks and Oily Water Interceptors is included in Appendix 12.*

3.5.3 Inspection & Emptying of Sealed Tanks/ Oily Water Interceptors

Step	Responsible	Action
CAUTION: Vacuum truck/bowser must be earthed before removal/delivery of liquids in accordance with SHLNG procedure Road Tanker Earthing (OP.06A.00.024.00).		
1	General Services Contractor	Obtain Permit to Work for inspecting the sealed tanks. Pre- job brief must highlight locations of nearest Safety shower, eye wash station and spill kit.
2	General Services Contractor	Inspect the area, including source catchment, upstream and downstream drainage systems, around the sealed tank/ oily water interceptor/ catchment pits/ drains and assess for evidence of contamination in the form of leaks or pollution. ***Note:*** *Inform Process Supervisor if pollution is suspected.*
3	General Services Contractor	If contamination is identified, refer to the SHLNG Procedure Spill Control (PE.10A.01.005.00) to determine the level of spill/ contamination and the appropriate corrective action(s) to be taken.
Caution: Do not enter or partially enter a confined space without a Confined Space Entry Certificate		
4	General Services Contractor	Inspect and assess the contents of the sealed tank/oily water interceptor/catchment pit for oil/contamination by performing a visual and odour assessment. Evidence of contamination is as follows: • Visible – Oil droplets – Accumulations of oil – Oil sheen • Odour ***Note:*** *Refer to Appendix 13 for guidance on how to inspect an Interceptor*
Contamination Free		

Step	Responsible	Action
5	General Services Contractor	**Interceptor** No action required, the interceptor may continue to function normally draining passively into the surface water drainage system.
6	General Services Contractor	**Sealed Tank or Catch Pit** Transfer the contents into the surface water drainage system using a Vacuum truck/ bowser. ***Notes:*** • *Constant attendance and monitoring required during transfer.* • ***STOP WORK** immediately and inform Process Supervisor if any problem arises*
Evidence of Contamination		
7	General Services Contractor	**Interceptor, Sealed Tank or Catch Pit** The contents **MUST NOT** be emptied to surface water drainage system if oil contamination is present or is suspected. ***Notes:** Inform the Process Supervisor who will investigate the source of the contamination and record any details in their handover log.* *Refer to Appendix 13 for guidance on how to inspect an Interceptor*
8	General Services Contractor	**De-silting** If required, remove accumulations of silt follow the guidelines set out in Appendix 13. ***Note:** Silt within an interceptor must not be allowed to settle passed the maximum allowable accumulation level, or correct effective functioning of the interceptor may be compromised.*
9	General Services Contractor	Arrange for the removal of the contaminated waters and/or silt for authorised disposal off-site, (for example: by Road Tanker/ bowser/ IBC's) in accordance with *SHEMS 6C Environmental Management*. ***Note:** Refer to SHLNG Environmental Management Manual SM.06C.01.000.00*
Return to Normal Operation		
10	General Services Contractor	Upon completion of works, inspect the area around sealed tank/oily water interceptor/catchment pits/drains and assess for evidence of potential contamination.
11	General Services Contractor	If contamination is identified, refer to the SHLNG Procedure Spill Control (PE.10A.01.005.00) to determine the level of spill/contamination and the appropriate corrective action(s) to be taken.

3.6 Sewerage & Site Drainage System Maintenance Guidelines

The purpose of this section is to provide operatives with instruction on how to safely and effectively maintain the site surface water drainage system and the foul sewerage system at SHLNG.

This section for maintenance of the surface water drainage system and the foul sewerage system is designed to provide guidance to ensure the system is working in optimum condition. It will assist the operator in reducing potential environmental impact. and supports the section in this procedure on *Operation and Maintenance of the Site Drainage Systems.*

Scope

This section is applicable to all personnel involved in the maintenance of the site surface water drainage system and the foul sewerage systems at SHLNG.

3.6.1 Prerequisites

Hazards

Caution: Inert and toxic gasses such as Nitrogen and Hydrogen Sulphide (H2S) may be present within the sewerage and drainage systems at SHLNG.

This Work Aid **Does Not** cover any Confined Space working, **Do Not Enter or Partially Enter** any part of the sewerage and drainage systems whilst performing the duties of this Work Aid.

Safety

Personnel exposure to hazardous material is not expected during the performance of this section.

A Control of Substances Hazardous to Health (COSHH) assessment is required:

The following hazardous materials may potentially be present within the interceptors and sealed tanks:

- Caustic (sodium hydroxide NAOH)
- Diesel oil
- Transformer oils
- Lubricating oils & Greases
- Glycol
- Miscellaneous chemicals used on site

Ensure SDS's/ COSHH assessments are current and available, as required.

Follow HSE best practice guidelines "Working with Sewage."

Note: *A designated General Services Contractor will remove any identified contaminated materials and/ or liquids.*

Environmental

Work on the surface water drainage system could affect the monitoring equipment and readings at:

- Environmental permit surface water emission point Ref. W1
- Environmental permit Process effluent emission point Ref. W2.

Any contamination of the water could potentially result in breaches of the mandatory Environmental Permit Emission Limit Values (ELVs).

Although there is no direct connection between the foul sewerage system and the site surface water drainage system or process waters, it is important to note that any failure of the foul sewerage system could result in a serious environmental incident.

Precautions

Before attempting to inspect/ maintain the site surface water drainage system please ensure that:

- All operatives are wearing the appropriate PPE in accordance with the specific SHLNG Job Safety Analysis (JSA) Risk Assessment Method Statements/ any COSHH assessment(s).
- All operatives are suitably trained to handle any substance(s) identified within any COSHH assessments.
- All operatives are aware of the HSE guidance on “Working with Sewage” (INDG198).
- Where necessary, any activities carried out are performed in accordance with the Lifesaving Site Rules and under a Permit to Work Procedure (SM.06B.02.000.00).

3.6.2 Maintenance of the Site Surface Water Drainage System

3.6.2.1 Duties / Actions for V-Ditches, Channels, Catch Pits, Gullies and Trash Screens

V-Ditches and Channels

Step	Responsible	Action
1	General Services Manager	Inspect V-ditches and channels every month and after a storm event for: • Debris including obstacles and any accumulation of silt . • Structural defects
Required Actions		
2	General Services Manager	Arrange for the removal of any debris, obstacles or accumulation of silt.
3	General Services Manager	Raise a notification for Maintenance to carry out any structural defects that require repair. Inform the Process Supervisor of any defects. ***Note:*** *Technical Services may be required to assist in the design and application of any repair.*

Catch Pits / Manholes and Gullies

Step	Responsible	Action
1	General Services Manager	Inspect catch pits / manholes and gullies for debris and any accumulation of silt / sediment on a periodic basis. ***Note:*** *Also visually inspect the general condition of the insides of catch pits for any evidence of damage / defects which may affect functionality (e.g. cracks, falling debris, obvious leaks etc).*
Required Actions		
2	General Services Manager	Ensure that silt / sediment is removed when approaching the invert level of the outgoing pipe.
3	General Services Manager	Raise a notification for Maintenance to carry out any structural defects that require repair. Inform the Process Supervisor of any defects. ***Note:*** *Technical Services may be required to assist in the design and application of any repair.*

Trash Screens

Step	Responsible	Action
1	General Services Manager	Inspect trash screens periodically (at least monthly) and after storm events for debris and obstacles. .
Required Actions		
2	General Services Manager	Arrange for any debris to be cleared, when it is safe to do so.

Step	Responsible	Action
3	General Services Manager	Raise a notification for Maintenance to carry out any repairs to defects within the Trash Screens. Inform the Process Supervisor if any defects. ***Note:*** *Technical Services may be required to assist in the design and application of any repair.*

3.6.2.2 Duties / Actions for the Attenuation Basin

Step	Responsible	Action
1	General Services Manager	On a monthly basis, inspect the condition of the attenuation basin and ensure water is free flowing.
Required Actions		
2	Process Operator/ General Services Contractor	Inform the General Services Manager if any defects are identified and/ or clearing of debris/ sediment is required.
3	Process Operator/ General Services Manager	Inform the Process Supervisor of any defects or clearing activities. If required, Process Supervisor will raise a SAP notification for Maintenance to carry out repairs.

3.6.2.3 Duties / Actions for the Skim Pond

There are several valves located within the surface water drainage system, these are shown on the Site Drainage Plan, reproduced in Appendix 14.

Step	Responsible	Action
1	General Services Manager	On a monthly basis, inspect the level of water against the weir level at the outflow of the skim pond to identify whether excess water is draining from the skim pond or water levels are significantly below the weir (reflecting drought conditions) and therefore the skim pond inlet penstock valve may need to be opened to 'top up' the skim pond ***Note:*** *Do not open the penstock over the penstock feed pipe to the skim pond without approval from Technical Services Manager*
2	General Services Manager	On a monthly basis, check the condition of the oil boom across the outlet of the skim pond. If the boom begins to sink, or shows any other sign of deterioration, it needs to be replaced. When required, replace oil boom in skim pond. Refer to SHLNG Procedure Spill Control (PE.10A.01.005.00) for details.

Valves - Attenuation Basin and Skim Pond

Step	Responsible	Action
1	Process Operator	Activate the Inlet and Outlet valves on a monthly basis to ensure correct operation, or alternative frequency specified in Operational Surveillance Routines. ***Note:*** *For test purposes only* ***Do Not*** *allow the surface water to enter the Skim Pond penstock over the penstock feed pipe to the skim pond, unless prior approval from the Technical Services Manager has been received*
2	Process Operator	Visually inspect the Inlet / Outlet Valves including penstocks for integrity.
3	Process Operator	Check the condition of the Sealing Gasket on the penstock assembly every 6 months.
Required Actions		
4	Process operator	Notify the Process Supervisor of any defects or anomalies If required, Process Supervisor will raise a SAP notification for Maintenance to carry out repairs.
5	Maintenance Superintendent	When required, replace the Sealing Gasket as follows: • Remove the screws located at the top of the frame, whose function is to prevent the gate from sliding out when the penstock is opened to enable fluid to pass • Once the opening stops have been released remove the gate from its guide • Without releasing the penstock from its housing remove the screws located in the flanges • Remove the flanges and the worn seals and, after cleaning the seat, replace with new ones • Replace the flanges and place the gate back on its guide

3.6.3 Maintenance of the Foul Sewerage System

3.6.3.1 Duties / Actions for Cesspools

Step	Responsible	Action
1	General Services Manager	Ensure that the three cesspools on site are emptied routinely (minimum guide frequency is weekly) using a vacuum tanker.
2	General Services Manager	Discharge of Sewage is only allowed at the permitted Dwr Cymru (Welsh Water) foul water discharge point located south of the Administration Building.

3.6.3.2 Duties / Actions for the Sewage Pumping Station

Step	Responsible	Action
1	Maintenance Superintendent	Ensure that the facilities and pumps within the sewage pumping station are maintained according to the SHLNG Terminal approved maintenance strategy.
Required Actions Upon Failure of Normal Sewage Deposal.		
2	Process Supervisor	If unable to pump sewage to the Herbrandston Sewage works, inform the General Services Manager.
3	General Services Manager	Arrange for the transport of sewage from the sewage pumping station to a suitably licenced waste management facility in accordance with all applicable legal requirements.
4	Process Supervisor/ Maintenance Superintendent General Services Manager – for jetting activities	**For structural, equipment or system failures within the sewerage system:** Process Supervisor/ Maintenance personnel to raise a SAP notification for Maintenance Section to carry out any structural defects that require repair. **If any jetting is required of the sewerage system:** General Services Manager to organise jetting of the sewerage system.

3.6.3.3 Duties / Actions for Sewerage System

Step	Responsible	Action
1	General Services Manager	Periodically arrange for a CCTV inspection of the sewerage system to identify any blockages / damage.
Required Actions		
2	General Services Manager	**Structural faults within the sewerage system:** General Services Manager to contact Maintenance sections to arrange for the Civil Works Contractor to repair the system, as required. **If any jetting is required of the sewerage system:** General Services Manager will arrange for the jetting of the sewerage system.

4. Additional Information

4.1 Acronyms and Definitions

The acronyms and definitions listed below apply throughout this document.

Term	Definition
BOD	Biological Oxygen Demand
Bund	A bunded area is surrounded by a wall of impervious material which is capable of retaining liquid.
CCR	Central Control Room
Confined Space	A confined space is an area that is partially or fully enclosed, where there is a risk of serious injury or death from dangerous conditions.
CP11	Catch pit 11 (Manhole south of Skim pond, 'upstream' of CP12)
CP12	Catch pit 12 (Last Manhole on the Site Surface Water Drainage System
Environmental Permit	Environmental Permitting Regulations Permit Ref. EPR/XP3538LD
JSA	Job Safety Analysis
IBC	Intermediate Bulk Container
IS	Intrinsically Safe
NB1	Neutralisation Basin 1 South of SCV train 1
NB2	Neutralisation Basin 2 South of SCV train 2
Olfactory	Sense of smell
SDS	Safety Data Sheet
SHLNG	South Hook LNG Terminal Company Ltd.
SS	Sub Station
TOC	Total Organic Carbon
W1	Monitoring emission point reference for surface water drainage
W2	Monitoring emission point reference for process effluent
Weils Disease	This is a serious and sometimes fatal infection that is transmitted to humans by contact with urine from infected rats

Table 4. Acronyms and Definitions

5. Appendices

Contents

Appendix 1 Reference Documents

Reference documents applicable to this procedure are listed in the table below.

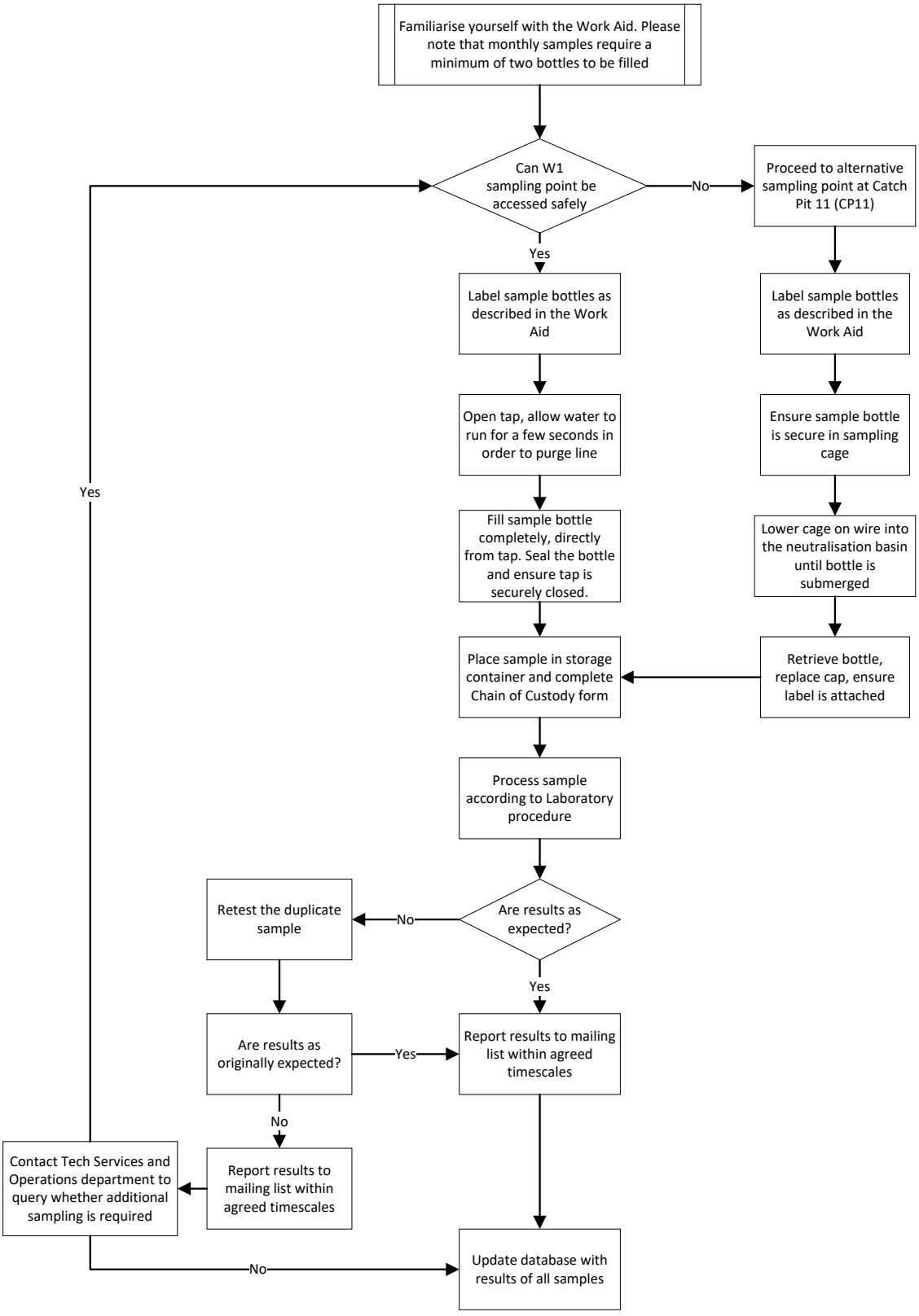
Number	Title
SM.06C.01.000.00	Environmental Management Manual
PE.10A.01.005.00	Spill Control Procedure
SM.05B.02.000.00	Safety Orientation
OP.06A.00.024.00	Road Tanker Earthing
SM.06B.02.000.00	Permit to Work
PE.06B.02.011.00	Job Safety Analysis
	Environmental Permit Number EPR/XP3538LD
HSE Guidelines	Working with Sewage

Appendix 2 Document Forms

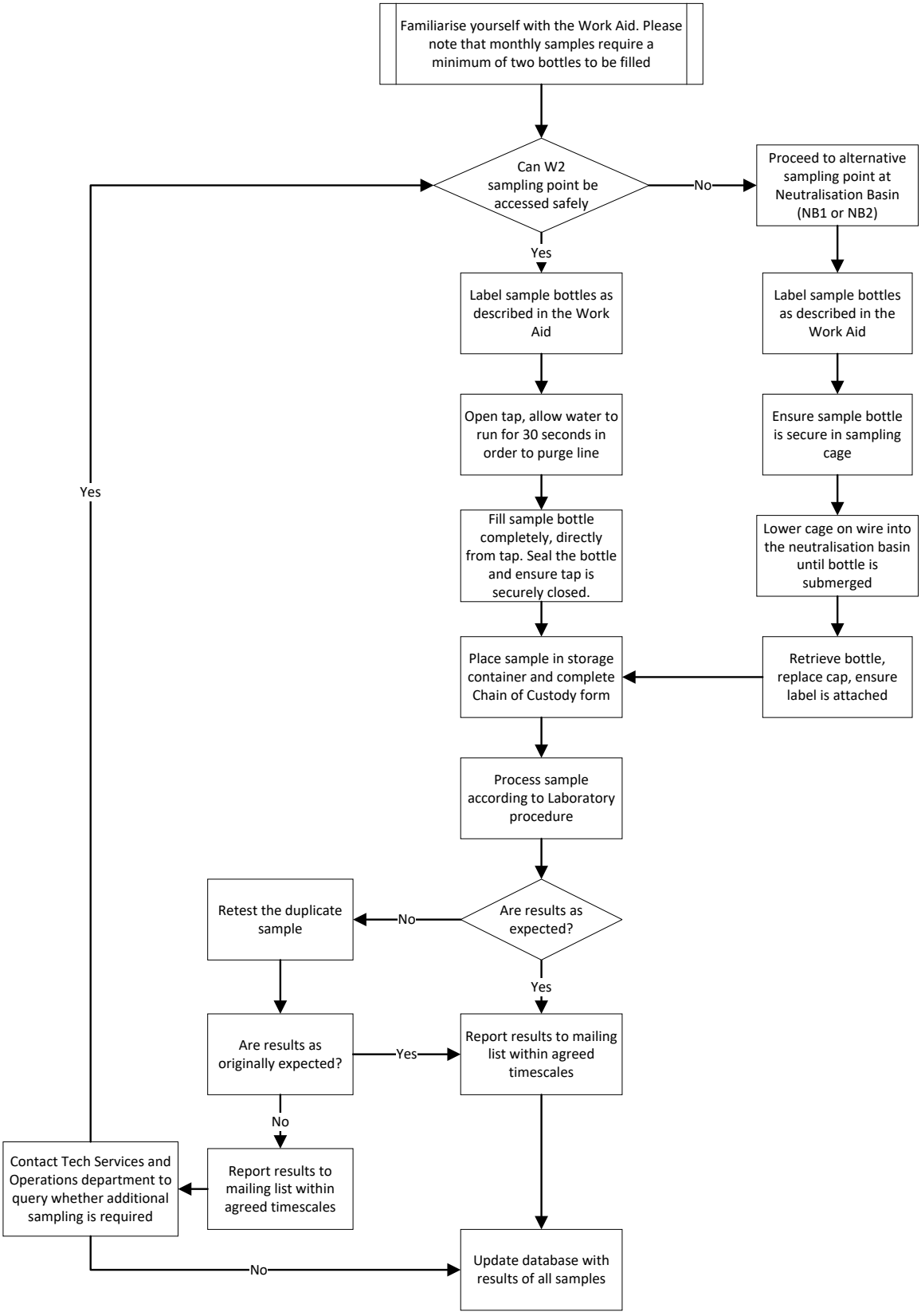
SHEMS forms applicable to this procedure are listed in the table below.

Number	Title

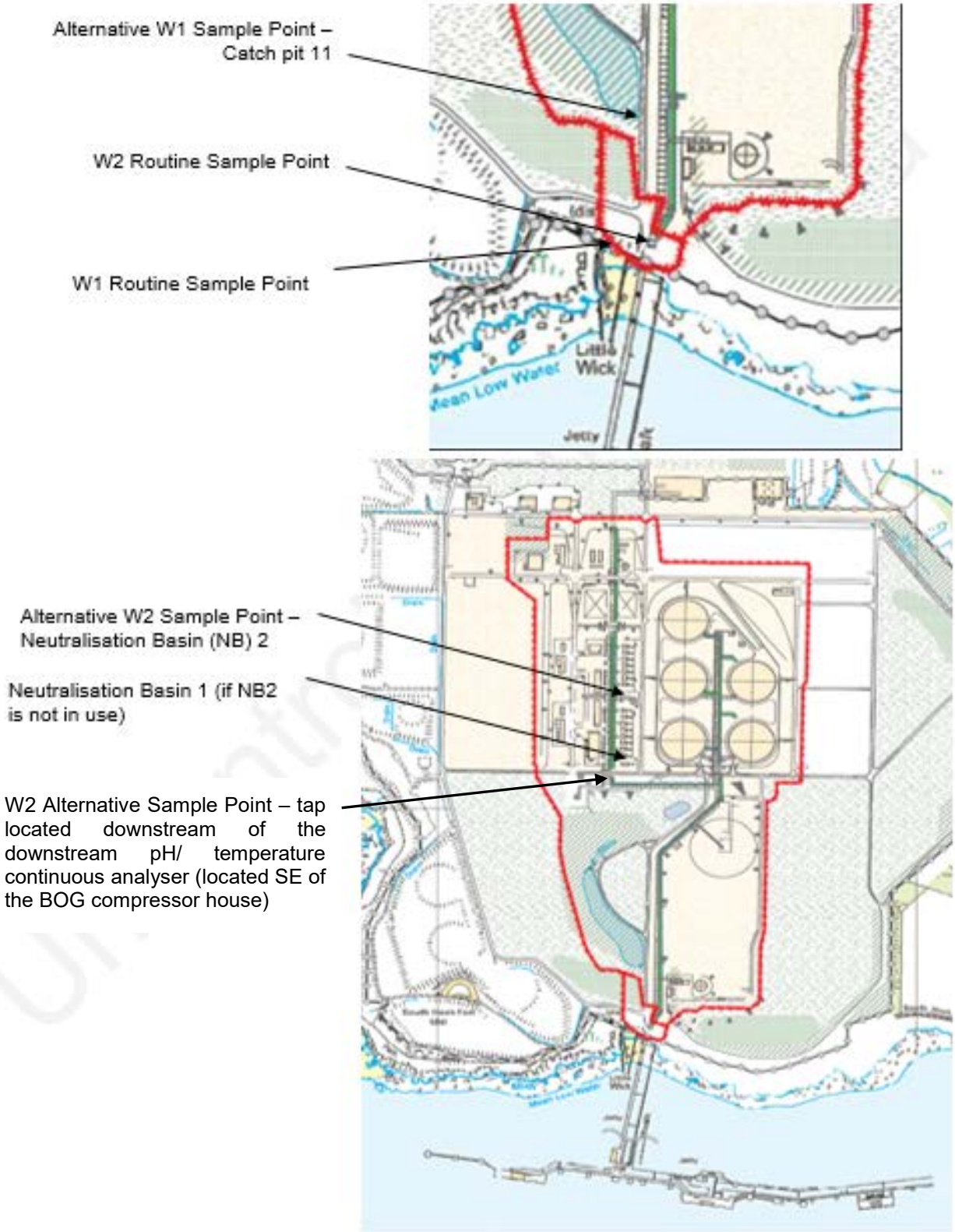
Appendix 3 Procedure Flowchart for W1 Sampling



Appendix 4 Procedure Flowchart for W2 Sampling



Appendix 5 Map showing locations of sample points for emissions to water



Appendix 6 W1 Permitted Sample Points

W1 Routine Permitted Sample Point - Catch Pit 12

W1 Alternative Sample Point - Catch Pit 11

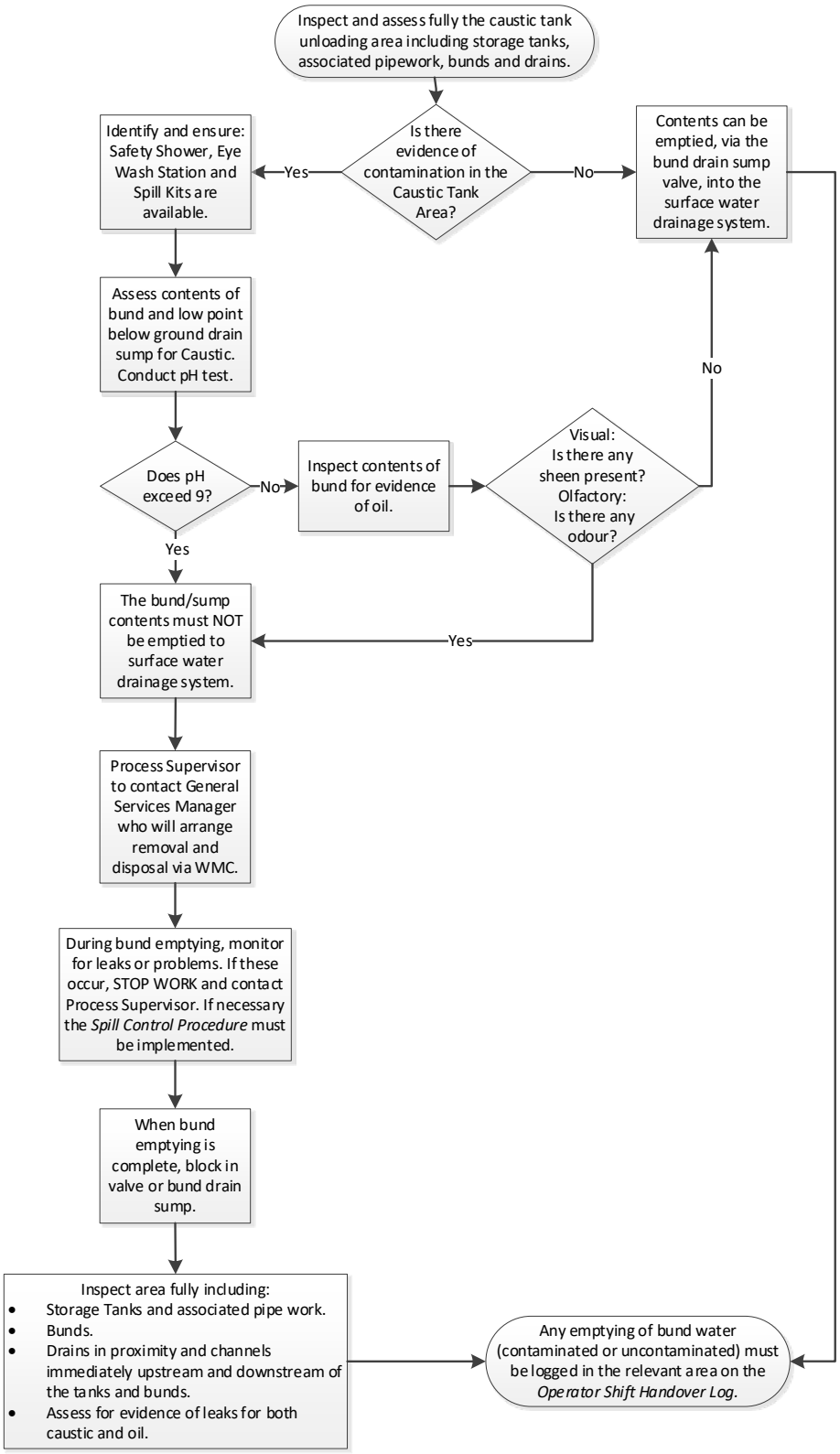
Appendix 7 W2 Permitted Sample Point

W2 Routine Permitted Sample Point - tap underneath jetty just north of Littlewick beach

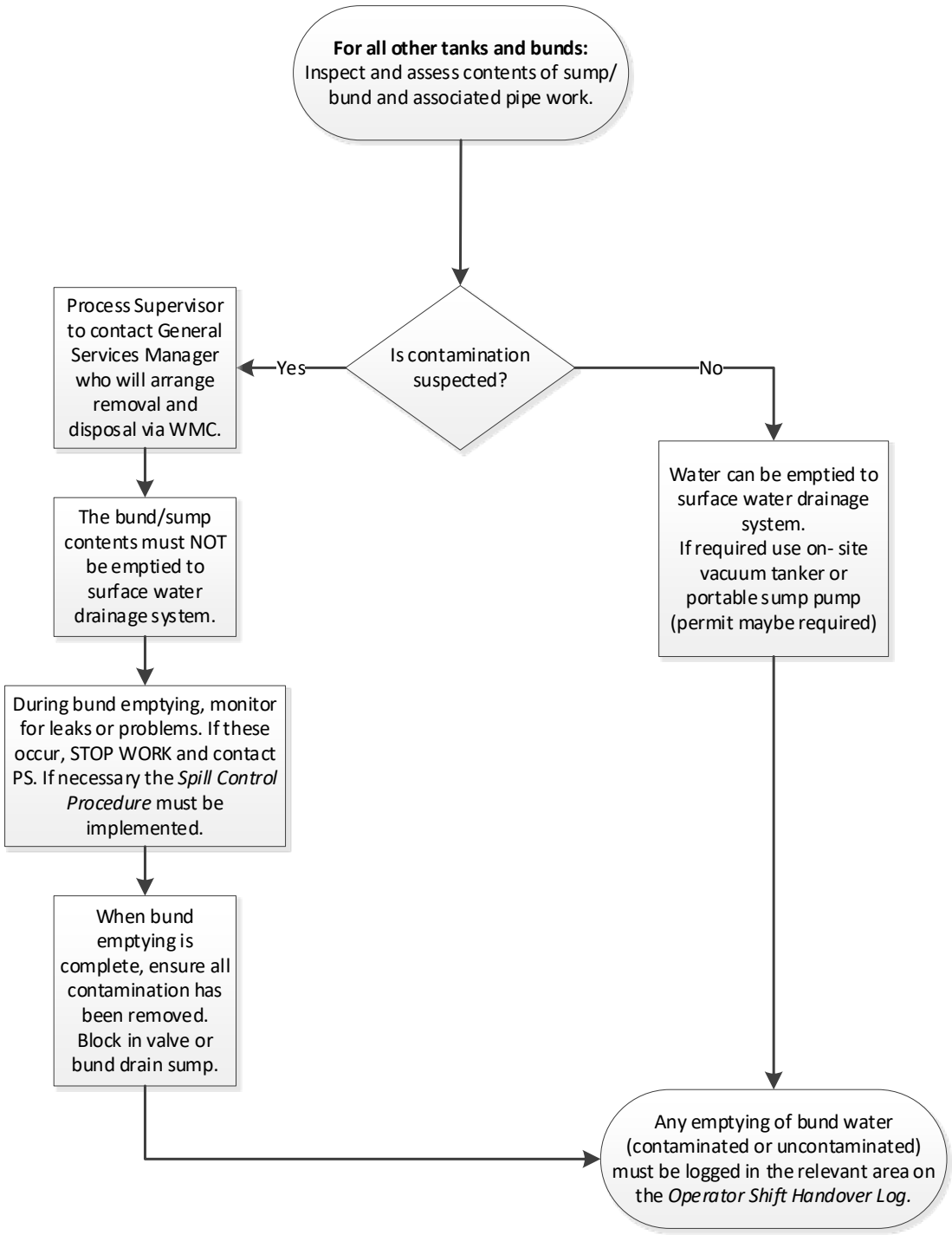
W2 Alternative Sample Point – tap located downstream of the downstream pH/ temperature continuous analyser (located SE of the BOG compressor house)

W1 Upstream Alternative Sample Point – Neutralisation basin

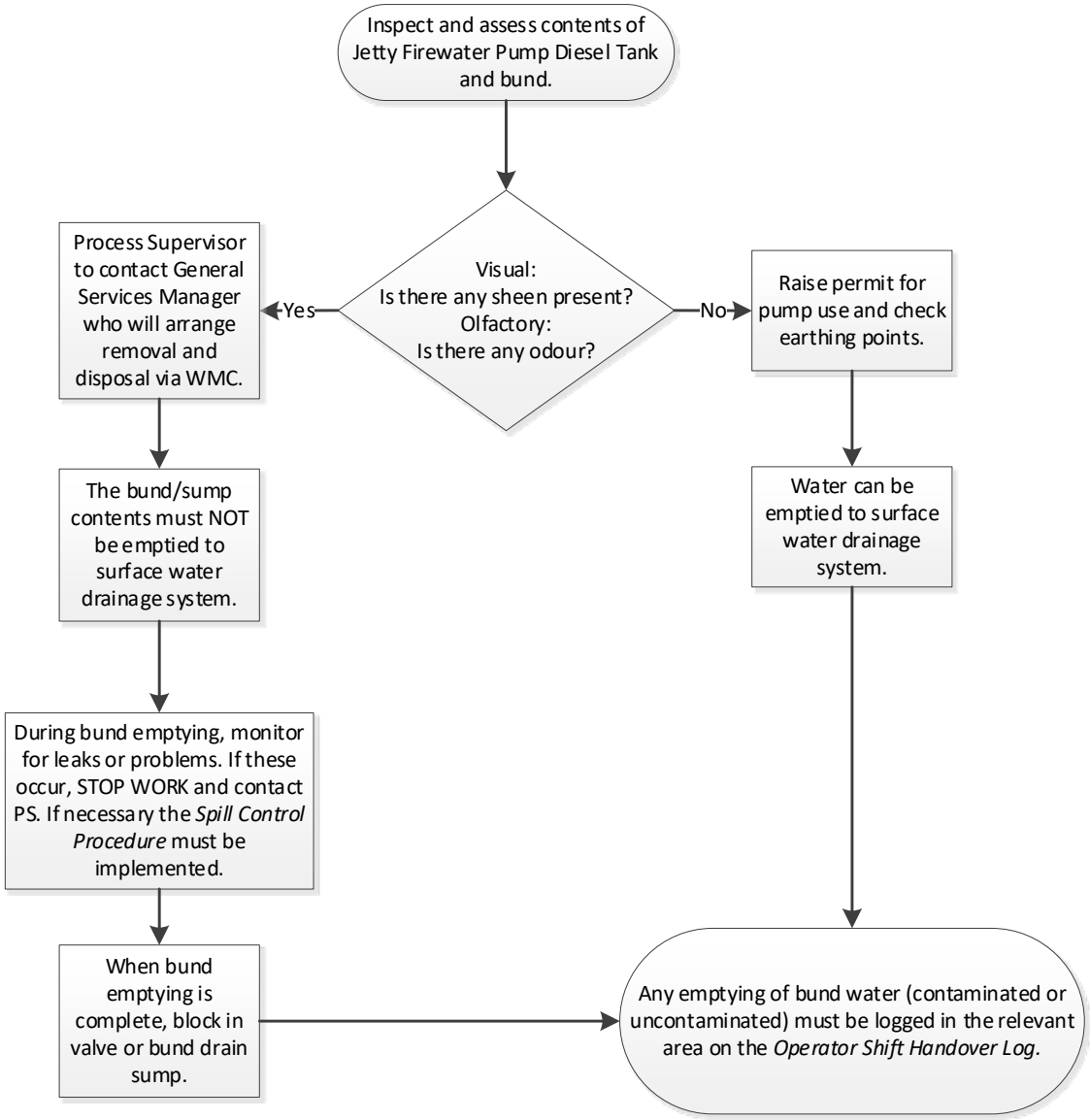
Appendix 8 Process Map:- Caustic Tankage, Pipework, Unloading and Bund Areas



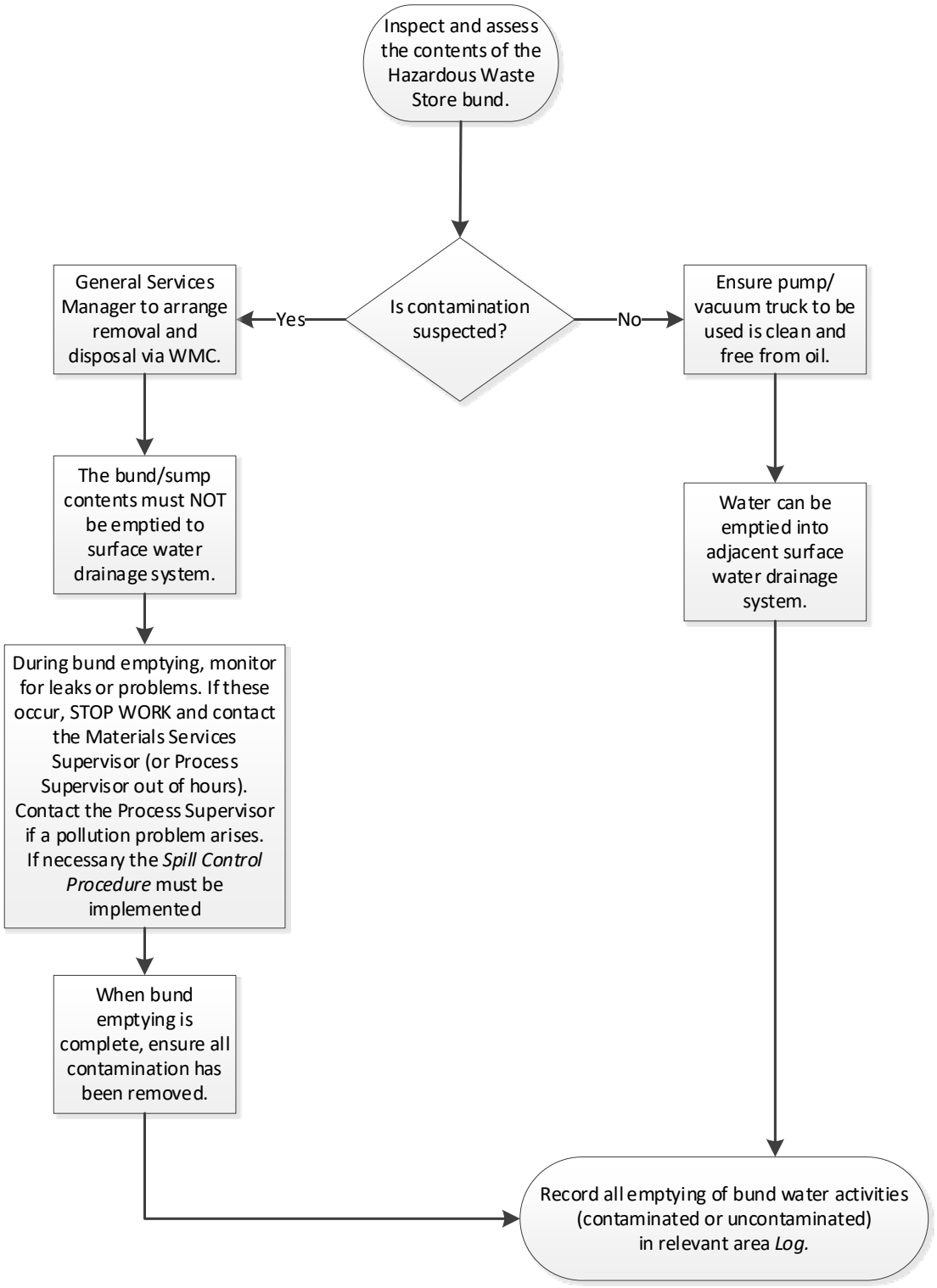
Appendix 9 Process Map:- Tankage, Pipework and Bund Areas (Non Caustic)



Appendix 10 Process Map:- Jetty Firewater Pump Diesel Tank Bund Area



Appendix 11 Process Map:- Hazardous Waste Storage Bund Area



Appendix 12 Location of Sealed Tanks and Interceptor Tanks

Sealed Tanks on Oily Water Drainage Systems

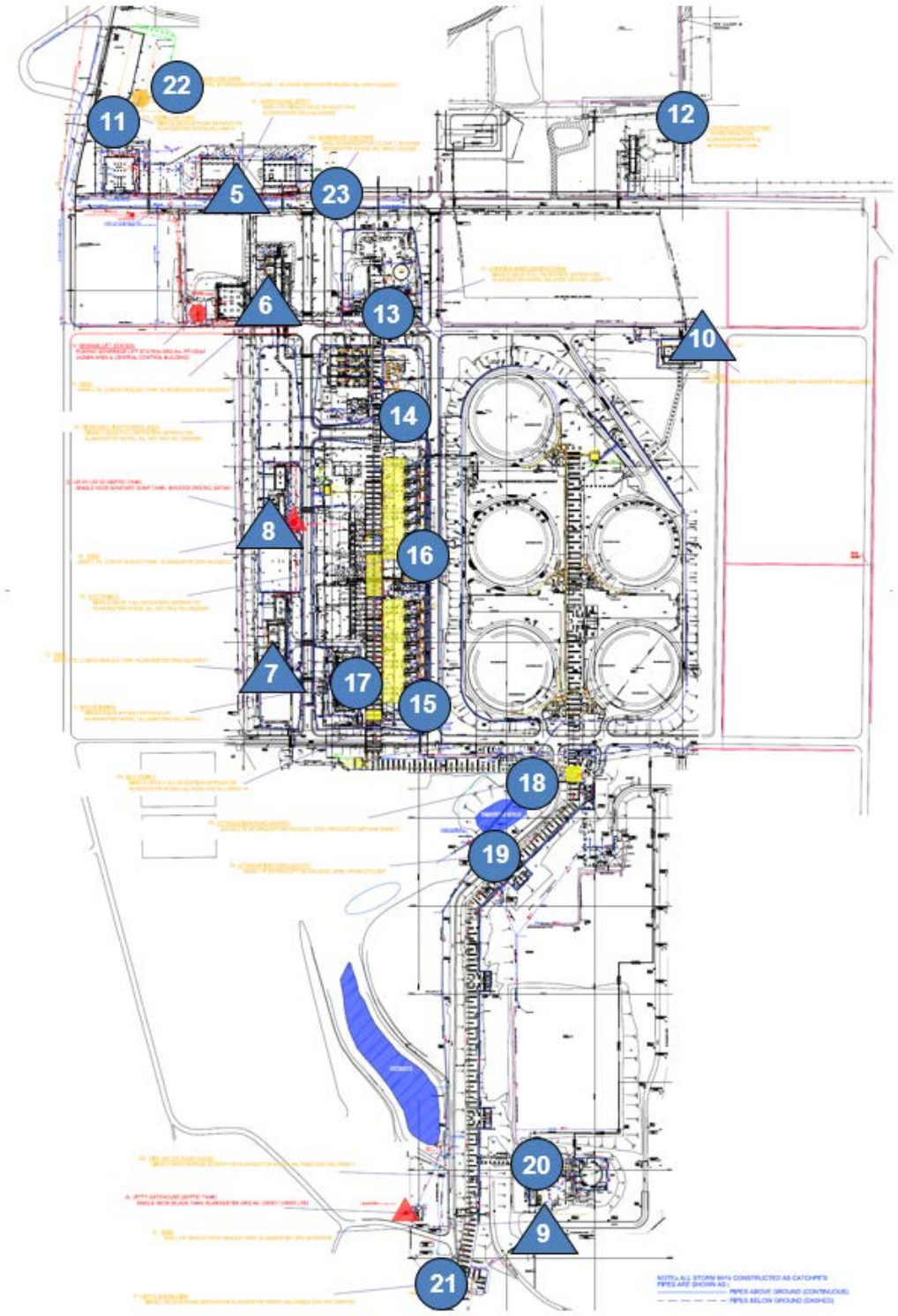
Item	Location	Description
5	Sub Station 07 (Warehouse)	6000 ltr, Single Neck Sealed Tank Klargester Drg No.DS0008
6	Sub Station 02	36000 ltr, 2 Neck Sealed Tank Klargester Drg No.DS0217
7	Sub Station 03	45000 ltr, 2 Neck Sealed Tank Klargester Drg No.DS0217
8	Sub Station 04	36000 ltr, 2 Neck Sealed Tank Klargester Drg No.DS0217
9	Sub Station 08	6000 ltr, Single Neck Sealed Tank Klargester Drg No.DS0008
10	Sub Station 09	27000 ltr, Single Neck Sealed Tank Klargester Drg No.DS0044

List of Interceptor Tanks on Oily Water Drainage Systems

Item	Location	Description
11	Admin Carpark	Single Neck Bypass Separator Klargester Model No. NSB10
22	Admin Carpark (new)	Spel Stormceptor Class 1, By-pass Separator Model No. 204/c1/225/225
23	Workshop Carpark (New)	Spel Stormceptor Class 1, By-pass Separator Model No. 204/C1/225/225
13	Utilities Area (Generators)	Single Neck Full Retention Seperator Klargester Model No. NS20 Drg No. DS0611K
14	Nitrogen / Instrument Area	Single Neck Full Retention Seperator Klargester Model No. NS3 Drg No. DS0598K
15	SCV Train 1	Single Neck Full Retention Seperator Klargester Model No. NS20 Drg No. DS0611K
16	SCV Train 2	Single Neck Full Retention Seperator Klargester Model No. NS3 Drg No. DS0598K
17	BOG Compressor House	Single Neck Bypass Separator Klargester Model No. NSB8 Drg No. DS0613
18	Attenuation Pond North	Spel Stormceptor 630 CI SC. 267000 ltr
19	Attenuation Pond South	Spel Stormceptor 350 CI SC. 20000 LTR
20	Firewater Pump House	Single Neck Bypass Seperator Klargester Model No. NSB4 Drg No. DS0613
21	Jetty Foreshore	Single Neck Bypass Seperator Klargester Model No. NSBD4 Drg No. DS0613K
12	Contractors Carpark	No longer in use.

Note: *Item numbering taken from drawing SH-40-70-MP-DR-PL-001*

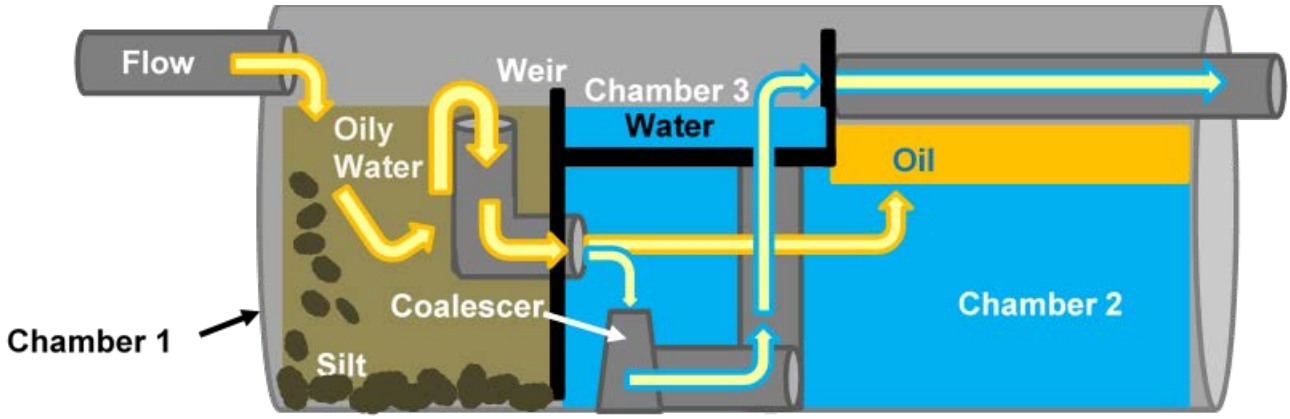
Site Plan Showing Interceptors / Sealed Tanks on Oily Water System



Note: *Refer to I:\Accessible SH Environmental Info\Drainage drawing autocad (SH-40-70-MP-DR-PL-001) for greater detail.*

Appendix 13 Advice on Routine inspections and Emptying of Interceptors

Typical arrangement of By-pass Interceptor



Step	Action
Caution: Do Not Enter or **Partially Enter** any part of the Interceptor unless a valid Confined Space Entry Certificate has been issued with your Permit to Work.	
1	Check **Chamber 3** for any signs of pollutants – should be clean water and contamination free. • Inform Process Supervisor if pollution found. • Empty contents of **Chamber 3** with Vacuum Truck ***Note:*** *Oil contamination in **Chamber 3** will indicate* – ***Chamber 2** is saturated with Oil and requires empting* – ***Coalescer / Filter** is full of contaminates and requires cleaning* – *Weir between **Chambers 1 and 3** has been breached since last inspection (bypass interceptors only)*
2	Check **Chamber 1** for retained pollutants: • Skim oil off the top of the retained water in the chamber using a Vacuum Truck. • Remove any floating debris from the chamber
3	Check for **SILT** deposits in **Chamber 1.** • If required, remove silt from chamber using Vacuum Truck ***Note:*** *Accumulated silt must not exceed the maximum allowable accumulation level (ie rated level x 100, for example 3 l/s rated interceptor would be 3 x 100 = 300 litres of accumulated silt).*
4	Inspect the Inlet and skim pipes in **Chamber 1** for blockages. • Remove any blockages
5	Inspect the weir plate between **Chamber 1 and 3** and ensure it is free of debris, (bypass interceptors only)
6	Check **Chamber 2** for retained pollutants: • Remove all oil from the chamber using a Vacuum Truck. • Remove any floating debris from the chamber

Step	Action
	Note: *Leave enough water in the chamber to ensure the automatic closure device is still floating*
7	**SPEL Stormceptor Separators only.** Clean the automatic alarm/monitoring system probe • Remove probe from its protection tube, wiped clean and re-inserted
Cleaning the Coalescer Filter Unit.	
8	The **Coalescer** captures any oil entrained in the water passing from **Chamber 2** into **Chamber 3** (clean water discharge). The entrained oil then amalgamates together and either: 1) Rises out of the **Coalescer** and floats to the surface of **Chamber 2**. 2) Stays trapped within the **Coalescer** causing a blockage. When necessary, clean the **Coalescer** using the following guidance: • Remove the contents of **Chambers 1 and 2** with a Vacuum Truck. ***Note:*** *leave enough water to ensure the automatic closure device is still floating* • Remove the Coalescer unit from the interceptor • Remove the **foam/filter medium inserts** from the **Coalescer** and wash with water – replace if necessary, (ensuring wash water is disposed of in accordance with *SHEMS 6C Environmental Management*). • Remove the complete contents of **Chambers 2** • Remove the Automatic Closure Device and clean • Reassemble the **Coalescer** with the cleaned/replace **foam/filter medium inserts.** • Re-insert Coalescer unit and Automatic Closure Device ***Note:*** *The **Coalescer Unit** is normally located at the bottom of **Chamber 2.***
Return to Service	
9	Allow the interceptor to refill to its normal working level
10	Carry out a final inspection to confirm a satisfactory Return to Service

Appendix 14 Site Plan Showing Drainage System

Note: *Full size copies of this drawing may be obtained from TDMS with Drawing Number SH-40-70-MP-DR-PL-001 Refer to I:\Accessible SH Environmental Info\Drainage drawing autocad (SH-40-70-MP-DR-PL-001) for greater detail.*

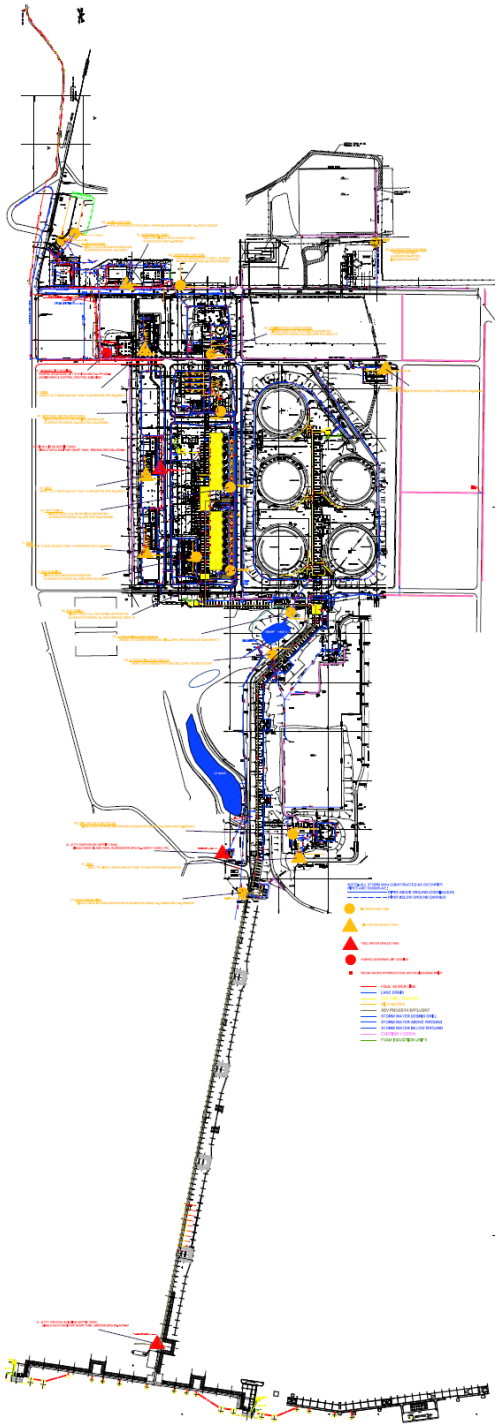


Figure 2. Site Plan Showing Drainage System

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Appendix D
REGULATOR INSPECTION REPORTS

Cyfoeth Naturiol Cymru Natural Resources Wales

Compliance Assessment Report

Report ID: CAR_NRW0026408

This form will report compliance with your permit as determined by an NRW officer					
Site	SOUTH HOOK LIQUEFIED NATURAL GAS TERMINAL	Permit Ref	XP3538LD		
Operator/Permit holder	South Hook LNG Terminal Company Ltd.				
Regime	Installations				
Date of assessment	21/09/2016	Time in	09:30	Out	13:00
Assessment type	Audit				
Parts of the permit assessed	See report below				
Lead officer's name	Broom, Mark				
Accompanied by	Lewis, Gareth A.				
Recipient's name/position	Dr Shane Evans/ Senior Enviromental ENgineer	Date issued	16/11/2016		

Section 1 – Compliance Assessment Summary

This is based on the requirements of the permit under the Environmental Permitting Regulations. A detailed explanation is captured in "Compliance Assessment Report Detail" (Section 2) and any actions you may need to take are given in the "Action(s)" (section 4). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our Compliance Classification Scheme (CCS). CCS Scores can be consolidated or suspended where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your local office.

Permit conditions and compliance summary	CCS Category	Condition(s) breached
A1 - Specified by permit	A	
C2 - General Management - Management system and operating procedures	A	
E2 - Emissions - Land and groundwater	A	

KEY: See Section 5 for breach categories, suspended scores will be indicated as such.
A = Assessed or assessed in part (no evidence of non-compliance), **X** = Action only,
O = Ongoing non-compliance, not scored.

Number of breaches recorded	0	Total compliance score (see section 5 for scoring scheme)	0

If the Number of breaches recorded is greater than zero, please see Section 3 for our proposed enforcement response

Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- The part(s) of the permit that were assessed (eg. Maintenance, training, combustion plant, etc)
- Where the type of assessment was 'Data Review' details of the report/results triggering the assessment
- Any non-compliances identified
- Any non-compliances with directly applicable legislation
- Details of any multiple non-compliances
- Information on the compliance score accrued inc.
- Details of advice given
- Any other areas of concern
- Any actions requested
- Any examples of good practice
- A reference to photos taken

The main purpose of this intervention was to hand over the regulatory responsibility from Gareth Lewis, who is retiring after 25 years as a regulator, to Mark Broom.

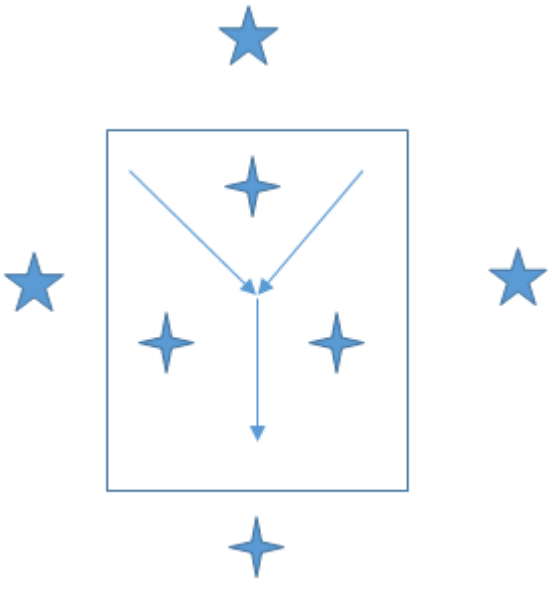
Operational report

The terminal has now received a total of 536 cargoes of LNG since it first opened in March 2009. It supplies around 20% of the UK gas demand from Pembrokeshire and still uses LNG from Qatar.

Ground water

SHLNG have submitted a report about the groundwater monitoring against permit condition - 3.1.3. NRW has used their ground water specialists to review this submission. NRW will send the feedback report to SHLNG. Although the report describes the current groundwater conditions it does not use the latest guidance for this type of reporting - see - http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014XC0506(01)&from=EN. This guidance also covers the reporting of soil data. For this soil sampling SHLNG are looking to have three reference locations up gradient of the facility and four locations split between each ground water area (3) and one combined down gradient.

The diagram below outlines the SHLNG approach with the rectangle being the nominal footprint of the facility and the three arrows showing the ground water flow direction. The five sided starts are the background sample locations and the four sided stars the process related sample locations.



Reporting

SHLNG have 6 monthly water reporting and annual air release reporting. SHLNG are looing at their discontinuous monitoring and can this be aligned to the Medium combustion plant directive

(MCPD) so that every vapouriser is monitored discontinuously every year. This makes sense as it is like the MCPD monitoring requirements. The water and air results are reporting by the end of January each year followed by the 'Pollution Inventory' returns by the end of February and it makes sense that the commentary on these returns follows after these submissions which should give SHLNG time to collate and comment on the trends etc, the commentary should therefore come by the end of March as an annual return.

Conservation area

SHLNG have a section 108 planning agreement with the Pembrokeshire National Park for an area to the west of the facility that contains a number of old storage tank bases and bunds that have been taken over by nature. Some of the bunds and bases permanently hold water whereas others are seasonal. The conservation area is the yellow translucent area to the west of the facility.

SHLNG have a grazing agreement with a grazier on 50 acres of conservation area and it is grazed by 6 native welsh ponies. SHLNG are about to extend this initiative to 80 acres and 10 ponies. They have fenced off a further 30 acres towards the fort (but it does not include the fort and its immediate surroundings) to bring more of the conservation area into this style of management. This low level of grazing stops the encroachment of gorse and brambles and allows the area to be kept open for traditional grassland and cliff top plants. The hoof prints also open up the sward for opportunist seeding into the sward. There may be other opportunities within the SHLNG managed land to extend this initiative to the benefit of the local wildlife and environment. The photos below show the ponies, their effect on the grazing area and the regrowth of the grazing.

Conclusions

SHLNG have played an active role in using low level grazing to enhance the conservation area. They continue to seek ways in which to ensure compliance with their permitted requirements

while minimising their environmental impact.

Cyfoeth Naturiol Cymru Natural Resources Wales	**EPR Compliance Assessment Report**	**Report ID: CAR_NRW0026408**

This form will report compliance with your permit as determined by an NRW officer

Site	SOUTH HOOK LIQUEFIED NATURAL GAS TERMINAL	Permit Ref	XP3538LD
Operator/Permit holder	South Hook LNG Terminal Company Ltd.	Date	21/09/2016

Section 3 – Enforcement Response

You must take immediate action to rectify any non-compliance and prevent repetition.
Non-compliance with your permit conditions constitutes an offence and can result in criminal prosecutions and/or suspension or revocation of a permit. Please read the detailed assessment in Section 2 and the steps you need to take in Section 4 below.

Section 4 – Action(s)

This section summarises the actions identified during the assessment along with the timescales for when they will need to be completed.

Criteria Ref.	**CCS Category**	**Action required/advised**	**Due Date**
See Section 1 above			

Section 5 – Compliance notes for the Operator

To ensure you correct actual or potential non-compliance we may

- Advise on corrective actions verbally or in writing
- Require you to take specific actions verbally or in writing
- Issue a notice
- Require you to review your procedures or management system
- Change some of the conditions of your permit
- Decide to undertake a full review of your permit

Any breach of a permit condition is an offence and we may take legal action against you

- We will normally provide advice and guidance to assist you to come back into compliance either after an offence is committed or where we consider that an offence is likely to be committed. This is without prejudice to any other enforcement response that we consider may be required.
- Enforcement action can include the issue of a formal caution, prosecution, the service of a notice and/or suspension or revocation of the permit.

See our Enforcement and Civil Sanctions guidance for further information

This report does not relieve the site operator of the responsibility to

- Ensure you comply with the conditions of the permit at all times and prevent pollution of the environment
- Ensure you comply with other legislative provisions which may apply

Non-compliance scores and categories

CCS category	Description	Score
C1	A non-compliance that could have a major environmental effect	60
C2	A non-compliance which could have a significant environmental effect	31
C3	A non-compliance which could have a minor environmental effect	4
C4	A non-compliance which has no potential environmental effect	0.1

Operational Risk Appraisal (Opra) - Compliance assessment findings may affect your Opra score and/or your charges. This score influences the resource we use to assess permit compliance.

Section 6 – General information

Data protection notice

The information on this form will be processed by the Natural Resources Wales (NRW) to fulfil its regulatory and monitoring functions and to maintain the relevant public register(s). The NRW may also use and/or disclose it in connection with:

- Offering/providing you with its literature/services relating to environmental matters
- Consulting with the public, public bodies and other organisations (eg. Health and Safety Executive, local authorities) on environmental issues
- Carrying out statistical analysis, research and development on environmental issues
- Providing public register information to enquirers
- Investigating possible breaches of environmental law
- Assessing customer service satisfaction and improving its service
- Freedom of Information Act/Environmental Regulations request

The NRW may pass it on to its agents/representatives to do these things on its behalf. You should ensure that any persons named on this form are informed of the contents of this data protection notice.

Disclosure of information

The NRW will provide a copy of this report to the public register(s). However, if you consider that any information contained in this reports should not be released to the public register(s) on the grounds of commercial confidentiality, you must write to your local area office within twenty working days of receipt of this form indicating which information it concerns and why it should not be released, giving your reasons in full.

Customer charter

What can I do if I disagree with this compliance assessment report?

If you are unable to resolve the issue with your site officer, you should firstly discuss the matter with officer's line managers using the informal appeals procedure. If you wish to raise your dispute further through our official Complaints and Commendations procedure, phone our general enquiry number 0300 065 3000 (Mon to Fri 08.00 – 18.00) and ask for the Customer Contact team or send an email to enquiries@naturalresourceswales.gov.uk. If you are still dissatisfied you can make a complaint to the Public Services Ombudsman for Wales. For advice on how to complain to the Ombudsman phone their helpline on 0845 607 0987.

Welsh Language
If you would like this form in Welsh please contact your Regulatory Officer.

Compliance Assessment Report

Report ID: CAR_NRW0026411

This form will report compliance with your permit as determined by an NRW officer					
Site	SOUTH HOOK LIQUEFIED NATURAL GAS TERMINAL	Permit Ref	XP3538LD		
Operator/Permit holder	South Hook LNG Terminal Company Ltd.				
Regime	Installations				
Date of assessment	23/09/2016	Time in	N/A	Out	N/A
Assessment type	Report/Data Review				
Parts of the permit assessed	See criteria below				
Lead officer's name	Broom, Mark				
Accompanied by					
Recipient's name/position	Dr Shane Evans/ Senior Enviromental Engineer	Date issued	23/11/2016		

Section 1 – Compliance Assessment Summary

This is based on the requirements of the permit under the Environmental Permitting Regulations. A detailed explanation is captured in "Compliance Assessment Report Detail" (Section 2) and any actions you may need to take are given in the "Action(s)" (section 4). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our Compliance Classification Scheme (CCS). CCS Scores can be consolidated or suspended where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your local office.

Permit conditions and compliance summary	CCS Category	Condition(s) breached
E3 - Emissions - Surface water	A	
G1 - Monitoring and Records, Maintenance and Reporting - Monitoring of emissions and environment	A	
G4 - Monitoring and Records, Maintenance and Reporting - Reporting and notification to Natural Resources Wales	A	

KEY: See Section 5 for breach categories, suspended scores will be indicated as such.
A = Assessed or assessed in part (no evidence of non-compliance), **X** = Action only,
O = Ongoing non-compliance, not scored.

Number of breaches recorded	**0**	**Total compliance score** (see section 5 for scoring scheme)	0

If the Number of breaches recorded is greater than zero, please see Section 3 for our proposed enforcement response

Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- The part(s) of the permit that were assessed (eg. Maintenance, training, combustion plant, etc)
- Where the type of assessment was 'Data Review' details of the report/results triggering the assessment
- Any non-compliances identified
- Any non-compliances with directly applicable legislation
- Details of any multiple non-compliances
- Information on the compliance score accrued inc.
- Details of advice given
- Any other areas of concern
- Any actions requested
- Any examples of good practice
- A reference to photos taken

South Hook LNG are required to report their water discharge results every 6 months to NRW at Llandarcy. This report (SLNG-TS-ENV-C-502) as made on time, using the required formats and information (G4). There were no non-compliance (E2) with the permit emission limit values and the monitoring was carried out to the required standards and frequencies (G1).

Cyfoeth Naturiol Cymru Natural Resources Wales	**EPR Compliance Assessment Report**	**Report ID: CAR_NRW0026411**

This form will report compliance with your permit as determined by an NRW officer

Site	SOUTH HOOK LIQUEFIED NATURAL GAS TERMINAL	Permit Ref	XP3538LD
Operator/Permit holder	South Hook LNG Terminal Company Ltd.	Date	23/09/2016

Section 3 – Enforcement Response

You must take immediate action to rectify any non-compliance and prevent repetition.
Non-compliance with your permit conditions constitutes an offence and can result in criminal prosecutions and/or suspension or revocation of a permit. Please read the detailed assessment in Section 2 and the steps you need to take in Section 4 below.

Section 4 – Action(s)

This section summarises the actions identified during the assessment along with the timescales for when they will need to be completed.

Criteria Ref.	**CCS Category**	**Action required/advised**	**Due Date**
See Section 1 above			

Section 5 – Compliance notes for the Operator

To ensure you correct actual or potential non-compliance we may

- Advise on corrective actions verbally or in writing
- Require you to take specific actions verbally or in writing
- Issue a notice
- Require you to review your procedures or management system
- Change some of the conditions of your permit
- Decide to undertake a full review of your permit

Any breach of a permit condition is an offence and we may take legal action against you

- We will normally provide advice and guidance to assist you to come back into compliance either after an offence is committed or where we consider that an offence is likely to be committed. This is without prejudice to any other enforcement response that we consider may be required.
- Enforcement action can include the issue of a formal caution, prosecution, the service of a notice and/or suspension or revocation of the permit.

See our Enforcement and Civil Sanctions guidance for further information

This report does not relieve the site operator of the responsibility to

- Ensure you comply with the conditions of the permit at all times and prevent pollution of the environment
- Ensure you comply with other legislative provisions which may apply

Non-compliance scores and categories

CCS category	Description	Score
C1	A non-compliance that could have a major environmental effect	60
C2	A non-compliance which could have a significant environmental effect	31
C3	A non-compliance which could have a minor environmental effect	4
C4	A non-compliance which has no potential environmental effect	0.1

Operational Risk Appraisal (Opra) - Compliance assessment findings may affect your Opra score and/or your charges. This score influences the resource we use to assess permit compliance.

Section 6 – General information

Data protection notice

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- Consulting with the public, public bodies and other organisations (eg. Health and Safety Executive, local authorities) on environmental issues
- Carrying out statistical analysis, research and development on environmental issues
- Providing public register information to enquirers
- Investigating possible breaches of environmental law
- Assessing customer service satisfaction and improving its service
- Freedom of Information Act/Environmental Regulations request

The NRW may pass it on to its agents/representatives to do these things on its behalf. You should ensure that any persons named on this form are informed of the contents of this data protection notice.

Disclosure of information

The NRW will provide a copy of this report to the public register(s). However, if you consider that any information contained in this reports should not be released to the public register(s) on the grounds of commercial confidentiality, you must write to your local area office within twenty working days of receipt of this form indicating which information it concerns and why it should not be released, giving your reasons in full.

Customer charter

What can I do if I disagree with this compliance assessment report?

If you are unable to resolve the issue with your site officer, you should firstly discuss the matter with officer's line managers using the informal appeals procedure. If you wish to raise your dispute further through our official Complaints and Commendations procedure, phone our general enquiry number 0300 065 3000 (Mon to Fri 08.00 – 18.00) and ask for the Customer Contact team or send an email to enquiries@naturalresourceswales.gov.uk. If you are still dissatisfied you can make a complaint to the Public Services Ombudsman for Wales. For advice on how to complain to the Ombudsman phone their helpline on 0845 607 0987.

Welsh Language
If you would like this form in Welsh please contact your Regulatory Officer.

Cyfoeth Naturiol Cymru Natural Resources Wales

Compliance Assessment Report

Report ID: CAR_NRW0026947

This form will report compliance with your permit as determined by an NRW officer					
Site	SOUTH HOOK LIQUEFIED NATURAL GAS TERMINAL	Permit Ref	XP3538LD		
Operator/Permit holder	South Hook LNG Terminal Company Ltd.				
Regime	Installations				
Date of assessment	26/01/2017	Time in	N/A	Out	N/A
Assessment type	Report/Data Review				
Parts of the permit assessed	See below				
Lead officer's name	Broom, Mark				
Accompanied by					
Recipient's name/position	Dr Shane Evans/ Senior Enviromental ENgineer	Date issued	11/04/2017		

Section 1 – Compliance Assessment Summary

This is based on the requirements of the permit under the Environmental Permitting Regulations or the licence under the Water Resources Act 1991 as amended by the Water Act 2003. A detailed explanation is captured in "Compliance Assessment Report Detail" (Section 2) and any actions you may need to take are given in the "Action(s)" (section 4). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our Compliance Classification Scheme (CCS). CCS Scores can be consolidated or suspended where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your local office.

Permit conditions and compliance summary	CCS Category	Condition(s) breached
E1 - Emissions - Air	A	
E3 - Emissions - Surface water	A	
G1 - Monitoring and Records, Maintenance and Reporting - Monitoring of emissions and environment	A	
G4 - Monitoring and Records, Maintenance and Reporting - Reporting and notification to Natural Resources Wales	A	

KEY: See Section 5 for breach categories, suspended scores will be indicated as such.
A = Assessed or assessed in part (no evidence of non-compliance), **X** = Action only,
O = Ongoing non-compliance, not scored.

Number of breaches recorded	0	Total compliance score (see section 5 for scoring scheme)	0

If the Number of breaches recorded is greater than zero, please see Section 3 for our proposed enforcement response

Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- The part(s) of the permit that were assessed (eg. Maintenance, training, combustion plant, etc)
- Where the type of assessment was 'Data Review' details of the report/results triggering the assessment
- Any non-compliances identified
- Any non-compliances with directly applicable legislation
- Details of any multiple non-compliances
- Information on the compliance score accrued inc.
- Details of advice given
- Any other areas of concern
- Any actions requested
- Any examples of good practice
- A reference to photos taken

South Hook LNG are required to report their water discharge results every 6 months and their air releases and a number of other reports (water usage, energy usage and performance indicators)annually to NRW at Llandarcy.

This report (SLNG-TS-ENV-C-520) as made on time, using the required formats and information (G4). There were no non-compliance with the permit emission limit values for water (E2) and for air (E1) and the monitoring was carried out to the required standards and frequencies (G1).

Cyfoeth Naturiol Cymru Natural Resources Wales	**EPR Compliance Assessment Report**	**Report ID: CAR_NRW0026947**

This form will report compliance with your permit as determined by an NRW officer

Site	SOUTH HOOK LIQUEFIED NATURAL GAS TERMINAL	Permit Ref	XP3538LD
Operator/Permit holder	South Hook LNG Terminal Company Ltd.	Date	26/01/2017

Section 3 – Enforcement Response

You must take immediate action to rectify any non-compliance and prevent repetition.
Non-compliance with your permit conditions constitutes an offence and can result in criminal prosecutions and/or suspension or revocation of a permit. Please read the detailed assessment in Section 2 and the steps you need to take in Section 4 below.

Section 4 – Action(s)

This section summarises the actions identified during the assessment along with the timescales for when they will need to be completed.

Criteria Ref.	**CCS Category**	**Action required/advised**	**Due Date**
See Section 1 above			

Section 5 – Compliance notes for the Operator

To ensure you correct actual or potential non-compliance we may

- Advise on corrective actions verbally or in writing
- Require you to take specific actions verbally or in writing
- Issue a notice
- Require you to review your procedures or management system
- Change some of the conditions of your permit
- Decide to undertake a full review of your permit

Any breach of a permit condition is an offence and we may take legal action against you

- We will normally provide advice and guidance to assist you to come back into compliance either after an offence is committed or where we consider that an offence is likely to be committed. This is without prejudice to any other enforcement response that we consider may be required.
- Enforcement action can include the issue of a formal caution, prosecution, the service of a notice and/or suspension or revocation of the permit.

See our Enforcement and Civil Sanctions guidance for further information

This report does not relieve the site operator of the responsibility to

- Ensure you comply with the conditions of the permit at all times and prevent pollution of the environment
- Ensure you comply with other legislative provisions which may apply

Non-compliance scores and categories

CCS category	Description	Score
C1	A non-compliance that could have a major environmental effect	60
C2	A non-compliance which could have a significant environmental effect	31
C3	A non-compliance which could have a minor environmental effect	4
C4	A non-compliance which has no potential environmental effect	0.1

Operational Risk Appraisal (Opra) - Compliance assessment findings may affect your Opra score and/or your charges. This score influences the resource we use to assess permit compliance.

Section 6 – General information

Data protection notice

The information on this form will be processed by the Natural Resources Wales (NRW) to fulfil its regulatory and monitoring functions and to maintain the relevant public register(s). The NRW may also use and/or disclose it in connection with:

- Offering/providing you with its literature/services relating to environmental matters
- Consulting with the public, public bodies and other organisations (eg. Health and Safety Executive, local authorities) on environmental issues
- Carrying out statistical analysis, research and development on environmental issues
- Providing public register information to enquirers
- Investigating possible breaches of environmental law
- Assessing customer service satisfaction and improving its service
- Freedom of Information Act/Environmental Regulations request

The NRW may pass it on to its agents/representatives to do these things on its behalf. You should ensure that any persons named on this form are informed of the contents of this data protection notice.

Disclosure of information

The NRW will provide a copy of this report to the public register(s). However, if you consider that any information contained in this report should not be released to the public register(s) on the grounds of commercial confidentiality, you must write to your local area office within fifteen working days of receipt of this form indicating which information it concerns and why it should not be released, giving your reasons in full.

Customer charter

What can I do if I disagree with this compliance assessment report?

If you are unable to resolve the issue with your site officer, you should firstly discuss the matter with officer's line managers using the informal appeals procedure. If you wish to raise your dispute further through our official Complaints and Commendations procedure, phone our general enquiry number 0300 065 3000 (Mon to Fri 08.00 – 18.00) and ask for the Customer Contact team or send an email to enquiries@naturalresourceswales.gov.uk. If you are still dissatisfied you can make a complaint to the Public Services Ombudsman for Wales. For advice on how to complain to the Ombudsman phone their helpline on 0845 607 0987.

Welsh Language
If you would like this form in Welsh please contact your Regulatory Officer.

Cyfoeth Naturiol Cymru Natural Resources Wales

Compliance Assessment Report

Report ID: CAR_NRW0027051

This form will report compliance with your permit as determined by an NRW officer					
Site	SOUTH HOOK LIQUEFIED NATURAL GAS TERMINAL	Permit Ref	XP3538LD		
Operator/Permit holder	South Hook LNG Terminal Company Ltd.				
Regime	Installations				
Date of assessment	02/02/2017	Time in	N/A	Out	N/A
Assessment type	Report/Data Review				
Parts of the permit assessed	See below				
Lead officer's name	Broom, Mark				
Accompanied by					
Recipient's name/position	Dr Shane Evans/ Senior Enviromental ENgineer	Date issued	03/02/2017		

Section 1 – Compliance Assessment Summary

This is based on the requirements of the permit under the Environmental Permitting Regulations or the licence under the Water Resources Act 1991 as amended by the Water Act 2003. A detailed explanation is captured in "Compliance Assessment Report Detail" (Section 2) and any actions you may need to take are given in the "Action(s)" (section 4). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our Compliance Classification Scheme (CCS). CCS Scores can be consolidated or suspended where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your local office.

Permit conditions and compliance summary	CCS Category	Condition(s) breached
E1 - Emissions - Air	A	
E3 - Emissions - Surface water	A	
G4 - Monitoring and Records, Maintenance and Reporting - Reporting and notification to Natural Resources Wales	A	

KEY: See Section 5 for breach categories, suspended scores will be indicated as such.
A = Assessed or assessed in part (no evidence of non-compliance), **X** = Action only,
O = Ongoing non-compliance, not scored.

Number of breaches recorded	0	Total compliance score (see section 5 for scoring scheme)	0

If the Number of breaches recorded is greater than zero, please see Section 3 for our proposed enforcement response

Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- The part(s) of the permit that were assessed (eg. Maintenance, training, combustion plant, etc)
- Where the type of assessment was 'Data Review' details of the report/results triggering the assessment
- Any non-compliances identified
- Any non-compliances with directly applicable legislation
- Details of any multiple non-compliances
- Information on the compliance score accrued inc.
- Details of advice given
- Any other areas of concern
- Any actions requested
- Any examples of good practice
- A reference to photos taken

South Hook LNG are required by their permit (EPR/XP3538LD/V003, condition 4.2.2.a) to review their performance each year. This review has to be completed and submitted to NRW by 31st of January each year.

South Hook submitted a document (SHLNG-TS-ENV-C-521) by email on the 27/1/2017. The report reviews the performance of the monitored parameters against the relevant emission limit values to surface water (E3) and to air (E1). It was submitted by the deadline (G4).

NRW is currently interested in the releases of nutrients into the Haven waterway as increased levels of nitrogen and phosphate can lead to eutrophication of the waterway with consequential effects on the aquatic ecosystem. For this site the releases of nitrates from the submerged combustion vapourisers (SCVs) are a pollutant of concern to NRW because of their contribution to the nutrients in the Haven waterway.

Nitrates	Max daily concentration mgN/l	Mean daily concentration in the year mgN/l	Max daily load kgN/day	Daily load (annual mean) kgN/day
ELV	50	N/A	100	50
2016 performance	15	11	13	5
% of ELV	30	N/A	13	10
2015 performance	19	12	20	8
% of ELV	38	N/A	20	16

The table above summaries the performance of the South Hook LNG site for nitrates for 2016 and 2015 against their permitted releases levels. In all cases the performance in 2016 was below (30%of the ELV) or well below the emission limit values (10% of the ELV). Last year 2016 has a similar but generally lower release of nitrates compared to the previous year (2015), The 2015 data was taken from report SHLNG-HSSEQ-C-484.

Cyfoeth Naturiol Cymru Natural Resources Wales	**EPR Compliance Assessment Report**	**Report ID: CAR_NRW0027051**

This form will report compliance with your permit as determined by an NRW officer

Site	SOUTH HOOK LIQUEFIED NATURAL GAS TERMINAL	Permit Ref	XP3538LD
Operator/Permit holder	South Hook LNG Terminal Company Ltd.	Date	02/02/2017

Section 3 – Enforcement Response

You must take immediate action to rectify any non-compliance and prevent repetition.
Non-compliance with your permit conditions constitutes an offence and can result in criminal prosecutions and/or suspension or revocation of a permit. Please read the detailed assessment in Section 2 and the steps you need to take in Section 4 below.

Section 4 – Action(s)

This section summarises the actions identified during the assessment along with the timescales for when they will need to be completed.

Criteria Ref.	**CCS Category**	**Action required/advised**	**Due Date**
See Section 1 above			

Section 5 – Compliance notes for the Operator

To ensure you correct actual or potential non-compliance we may

- Advise on corrective actions verbally or in writing
- Require you to take specific actions verbally or in writing
- Issue a notice
- Require you to review your procedures or management system
- Change some of the conditions of your permit
- Decide to undertake a full review of your permit

Any breach of a permit condition is an offence and we may take legal action against you

- We will normally provide advice and guidance to assist you to come back into compliance either after an offence is committed or where we consider that an offence is likely to be committed. This is without prejudice to any other enforcement response that we consider may be required.
- Enforcement action can include the issue of a formal caution, prosecution, the service of a notice and/or suspension or revocation of the permit.

See our Enforcement and Civil Sanctions guidance for further information

This report does not relieve the site operator of the responsibility to

- Ensure you comply with the conditions of the permit at all times and prevent pollution of the environment
- Ensure you comply with other legislative provisions which may apply

Non-compliance scores and categories

CCS category	Description	Score
C1	A non-compliance that could have a major environmental effect	60
C2	A non-compliance which could have a significant environmental effect	31
C3	A non-compliance which could have a minor environmental effect	4
C4	A non-compliance which has no potential environmental effect	0.1

Operational Risk Appraisal (Opra) - Compliance assessment findings may affect your Opra score and/or your charges. This score influences the resource we use to assess permit compliance.

Section 6 – General information

Data protection notice

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- Providing public register information to enquirers
- Investigating possible breaches of environmental law
- Assessing customer service satisfaction and improving its service
- Freedom of Information Act/Environmental Regulations request

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Welsh Language
If you would like this form in Welsh please contact your Regulatory Officer.

Cyfoeth Naturiol Cymru Natural Resources Wales

Compliance Assessment Report

Report ID: CAR_NRW0031495

This form will report compliance with your permit as determined by an NRW officer					
Site	SOUTH HOOK LIQUEFIED NATURAL GAS TERMINAL	Permit Ref	XP3538LD		
Operator/Permit holder	South Hook LNG Terminal Company Ltd.				
Regime	Installations				
Date of assessment	29/03/2017	Time in	09:00	Out	13:00
Assessment type	Audit				
Parts of the permit assessed	See below				
Lead officer's name	Broom, Mark				
Accompanied by					
Recipient's name/position	Dr Shane Evans/ Senior Environment Officer, SHLNG	Date issued	13/04/2017		

Section 1 – Compliance Assessment Summary

This is based on the requirements of the permit under the Environmental Permitting Regulations or the licence under the Water Resources Act 1991 as amended by the Water Act 2003. A detailed explanation is captured in "Compliance Assessment Report Detail" (Section 2) and any actions you may need to take are given in the "Action(s)" (section 4). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our Compliance Classification Scheme (CCS). CCS Scores can be consolidated or suspended where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your local office.

Permit conditions and compliance summary	CCS Category	Condition(s) breached
A1 - Specified by permit	A	
E1 - Emissions - Air	A	
E2 - Emissions - Land and groundwater	A	
G1 - Monitoring and Records, Maintenance and Reporting - Monitoring of emissions and environment	A	
G4 - Monitoring and Records, Maintenance and Reporting - Reporting and notification to Natural Resources Wales	A	

KEY: See Section 5 for breach categories, suspended scores will be indicated as such.
A = Assessed or assessed in part (no evidence of non-compliance), **X** = Action only,
O = Ongoing non-compliance, not scored.

Number of breaches recorded	**0**	**Total compliance score** (see section 5 for scoring scheme)	0

If the Number of breaches recorded is greater than zero, please see Section 3 for our proposed enforcement response

Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- The part(s) of the permit that were assessed (eg. Maintenance, training, combustion plant, etc)
- Where the type of assessment was 'Data Review' details of the report/results triggering the assessment
- Any non-compliances identified
- Any non-compliances with directly applicable legislation
- Details of any multiple non-compliances
- Information on the compliance score accrued inc.
- Details of advice given
- Any other areas of concern
- Any actions requested
- Any examples of good practice
- A reference to photos taken

Site description

This facility receives liquid natural gas almost exclusively from Qatar and stores it as a liquid in one of 5 insulated fully contained storage tanks before heating it up in up to 15 vapourisers for distribution across the UK but the use of the National Grid gas network. This site can supply up to 25% of the UK demand for gas.

Purpose of visit/assessment

To review progress on environmental matters on site.

Person(s) present (Office based)

SHLNG Dr Shane Evans

Eamon O'Loughlin

Abdullah Al-Ghadid

NRW Mark Broom

MCPD and BAT Conclusions

The medium combustion plant directive (MCPD) relates to combustion plant between 1 and 50 MWth. South Hook LNG has 15 submerged combustion vapourisers (SCV) each at 37MWth so each one would be an MPCD plant. The SCVs burn gas and the exhaust gases are bubbled through water that has a very large heat exchanger to turn LNG to natural gas. There is an exemption in the MCPD for direct heating from the waste gasses from combustion plant e.g. dryers. On that basis, there is no direct heating of the LNG with the exhaust gases so SHLNG cannot claim exemption from the MCPD.

There are SCVs in Dragon LNG but also in the Isle of Grain in Kent and probably elsewhere in England. There need to be consistent across the two (or three) regulators of SCVs.

Turning to the interaction of the MCPD and the LCP BATc's. SHLNG will have capacity of 37 by 15 SCVs – i.e. 555MWth. So the facility is a chapter 2 IED process but not Chapter 3 as the waste gases can not go up through a single stack. Multiple SCVs should come in to the LCP BATc but the SCV technique does not appear to be described. NRW will review how it deals with this issue. One option could be to apply the general BATcs from the LCP BATcs and since there are no SCV specific ones NRW could then apply the tighter of the current ELVs and monitoring requirements vs the MPCD elvs and monitoring requirements.

The last consultation of the MPCD implementation in England and Wales refers to generators. SHLNG have emergency generators and fire water pumps. SHLNG have two diesel generators that are around 3MWth input but they operate (test) for around 20hours/year each. In theory these are in scope for MCPD but as they operate for less than the proposed 50 hours they drop out of MCPD ELVs for NOx. As the MCPD regulations have not been formally published, there is no clarity on the need for monitoring in this instance.

Similarly SHLNG have three fire water pumps that are direct drive from the engine to the pump. These are just over 1MWth in size and are run for around 100hours year for each pump. Based on the current consultation these pumps could be in scope for MCPD but could then drop out based on operating ours for the NOx elvs. Again there is no clarity on the need for monitoring of these pumps assuming that they do fall within the MCPD.

Depending on the regulator discussions, NRW may ask using a formal notice (regulation 60) asking for SHLNG to say how it complies with the general LCP BATcs and existing plant MCPD elvs and monitoring requirements. Once received the permit may be reviewed to ensure that it complies with the BATc requirements by incorporating in the Company's response into the scope of the SHLNG permit.

Site report

SHLNG are required under their permit condition 3.1.3 to carry out periodic monitoring for ground water at least once every 5 years and for soil at least every 10 years. As part of their shareholder agreements they carry out ground water sampling annually to a set program. This sampling is more frequent than the once every 5 years required by condition 3.1.3 that implements the IED baseline report requirements for ground water monitoring.

The soil sampling has not been confirmed. This new monitoring requirement was brought in by the current permit in 2015 so the site has in theory until 2025 to carry out this work. In the mean time SHLNG could review their current baseline report used for the original permit application to see if the risk assessments remain valid and to see how it is aligned to the EU Guidance on baseline monitoring under IED (2014/C 136/03).

The site has now been receiving LNG since 2009. There would be some logic to carrying out a soil monitoring after 10 years of operation.

Annual performance

SHLNG have looked at the main effluent parameters to see if there is a correlation with gas send out. Each parameter was graphed and a correlation calculated against gas send out. The most obvious correlation was with nitrate levels. This is not unexpected as when more gas is being sent out there is more heating and combustion that in turn would lead to NOx and nitrate generation.

The waste production should reduce next year as SHLNG have agreed with Dwr Cymru Welsh Water that the sewage produced within the site that was collected and tankered off site for treatment can now be collected and discharged to a sewer connection within the site boundary - again using a tanker. This change will reduce waste production by 70%.

Out gassing methane has been included in the site pollution inventory return.

Cyfoeth Naturiol Cymru Natural Resources Wales	**EPR Compliance Assessment Report**	**Report ID: CAR_NRW0031495**

This form will report compliance with your permit as determined by an NRW officer

Site	SOUTH HOOK LIQUEFIED NATURAL GAS TERMINAL	Permit Ref	XP3538LD
Operator/Permit holder	South Hook LNG Terminal Company Ltd.	Date	29/03/2017

Section 3 – Enforcement Response

You must take immediate action to rectify any non-compliance and prevent repetition.
Non-compliance with your permit conditions constitutes an offence and can result in criminal prosecutions and/or suspension or revocation of a permit. Please read the detailed assessment in Section 2 and the steps you need to take in Section 4 below.

Section 4 – Action(s)

This section summarises the actions identified during the assessment along with the timescales for when they will need to be completed.

Criteria Ref.	**CCS Category**	**Action required/advised**	**Due Date**
See Section 1 above			

Section 5 – Compliance notes for the Operator

To ensure you correct actual or potential non-compliance we may

- Advise on corrective actions verbally or in writing
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This report does not relieve the site operator of the responsibility to

- Ensure you comply with the conditions of the permit at all times and prevent pollution of the environment
- Ensure you comply with other legislative provisions which may apply

Non-compliance scores and categories

CCS category	Description	Score
C1	A non-compliance that could have a major environmental effect	60
C2	A non-compliance which could have a significant environmental effect	31
C3	A non-compliance which could have a minor environmental effect	4
C4	A non-compliance which has no potential environmental effect	0.1

Operational Risk Appraisal (Opra) - Compliance assessment findings may affect your Opra score and/or your charges. This score influences the resource we use to assess permit compliance.

Section 6 – General information

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Welsh Language
If you would like this form in Welsh please contact your Regulatory Officer.

Compliance Assessment Report

Report ID: CAR_NRW0032595

This form will report compliance with your permit as determined by an NRW officer					
Site	SOUTH HOOK LIQUEFIED NATURAL GAS TERMINAL	Permit Ref	XP3538LD		
Operator/Permit holder	South Hook LNG Terminal Company Ltd.				
Regime	Installations				
Date of assessment	07/12/2017	Time in	14:00	Out	16:00
Assessment type	Report/Data Review				
Parts of the permit assessed	3.1.3				
Lead officer's name	Broom, Mark				
Accompanied by					
Recipient's name/position	Dr Shane Evans/ Environmental Engineering Manager	Date issued	02/02/2018		

Section 1 – Compliance Assessment Summary

This is based on the requirements of the permit under the Environmental Permitting Regulations or the licence under the Water Resources Act 1991 as amended by the Water Act 2003. A detailed explanation is captured in "Compliance Assessment Report Detail" (Section 2) and any actions you may need to take are given in the "Action(s)" (section 4). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our Compliance Classification Scheme (CCS). CCS Scores can be consolidated or suspended where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your local office.

Permit conditions and compliance summary	CCS Category	Condition(s) breached
E2 - Emissions - Land and groundwater	A	
G1 - Monitoring and Records, Maintenance and Reporting - Monitoring of emissions and environment	A	
G4 - Monitoring and Records, Maintenance and Reporting - Reporting and notification to Natural Resources Wales	A	

KEY: See Section 5 for breach categories, suspended scores will be indicated as such.
A = Assessed or assessed in part (no evidence of non-compliance), **X** = Action only,
O = Ongoing non-compliance, not scored.

Number of breaches recorded	0	Total compliance score (see section 5 for scoring scheme)	0

If the Number of breaches recorded is greater than zero, please see Section 3 for our proposed enforcement response

Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- The part(s) of the permit that were assessed (eg. Maintenance, training, combustion plant, etc)
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- Details of advice given
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- A reference to photos taken

Meeting to discuss and review the soil and ground water monitoring proposals with SHLNG (Dr S Evans) and their contractor Dr A Green (RPS, by phone).

Permit condition 3.1.3 requires that South Hook LNG prepare a soil monitoring program that reflects the site operational activities and also meets the guidance on 'site' reports. The EC has issued some guidance on this issue to satisfy the IED requirements (see baseline monitoring under IED (2014/C 136/03)).

SHLNG have a network of ground water monitoring locations and a history of results. Previously it had been identified that it was not clear how the work that SHLNG does complies with their permit requirements in condition 3.1.3. SHLNG and their contractors RPS have been developing proposals to address this uncertainly. The approach taken has been based on the EU guidance in this issue (2014/C 136/03 -

http://eurlex.europa.eu/legalcontent/EN/TXT/HTML/?uri=CELEX:52014XC0506(01)&from=EN)

This is an eight-stage process. The approach taken by SHLNG (and their contractors) used this process to identify the substances and areas at risk.

Since the meeting, SHLNG submitted their monitoring proposals on 18 December 2017 document reference 171215LJER5575UAGGWMPRev3. As the proposals meets the IED guidance on this issue, it satisfies condition 3.1.3. This conclusion was emailed through to SHLNG on 8/12/17.

South Hook LNG have used a consultancy RPS to develop this soil monitoring program. It has been based on the historical work that has been done and relevant guidance including the EC work referenced above and also the NRW guidance note H5 on site condition reports. This work has culminated in the document JER5575C that uses a 10 yearly soil program and an analogous ground water sampling regime. This document was reviewed with South Hook LNG and RPS at this meeting.

The soil sampling program reflects the information already known about the site and its risks . The choice of sampling locations and parameters (pH, hydrocarbons, BTEX, GRO etc) reflect the risks (caustic and hydrocarbons (diesel, hydraulic oils and transformer oils)) poses by this site and its processes. The approach uses a targeted sampling sites (T1 - 5 sites) that are aimed at known risks and some additional non targeted locations (NT 1 - 5 sites) in case there are issues that could fall outside the risk profile of the site. This dual pronged approach is good and the non targeted locations should provide a safety net if there are issues coming up in the years ahead.

The laboratory analysis will be undertaken by UKAS accredited laboratories of ALS.

A similar approach is being planned for ground water but in this case the approach complements the existing internal company work that is carried out. For the ground water and since the SHLNG site used to be an oil refinery, any approach should be cognisant of that potential historic risk. One way of taking that into account is the use of discernibility which used to be included in the old GP04 ground water guidance. The approach used could include the concept of discernibility and also should include references to this issue in the ground water programme. The link below is a useful starting point on discernibility and ground water -

https://www.gov.uk/government/publications/groundwater-protection-technical-guidance/groundwater-protection-technical-guidance

This conclusion was emailed through to SHLNG on 19/1/18.

AOB

The medium combustion plant directive (MCPD) is being implemented into UK law. The proposals for its implementation in Wales has not been confirmed. It is likely that MCPD may not apply to already permitted sites such as South Hook. However this approach could change once details of this directives implementation has been completed.

Related to this issue is the request from South Hook LNG (SHLNG-TS-ENV-C-532) to make a

minor change to the current permit and to add a proposed portable air compressor to the list of release points. This formal change, if relevant, can be made whenever the permit is reviewed and reissued.

The Large combustion Plant BAT Conclusions (LCP BATc) have recently been published. NRW is looking to review the relevant permits. As this directive relates directly to Chapter 3 combustion plant and not to Chapter 2 processes like South Hook, NRW may not review the South Hook operations to meet the LCP BATc deadlines. In the meantime NRW is considering how to deal reviews of the permits for Chapter 2 sites like South Hook. It is likely that NRW and fellow regulators may only apply the general BATcs to the chapter 2 combustion plant that SHLNG are described in IED.

Conclusions

A useful meeting to review the soil and ground water proposals being developed by SHLNG and their contractor.The proposal reference JER5575 meets the requirements of condition 3.1.3 and soil and ground water sampling can take place on this site. The implementation of MPCD and the LCP BATc is developing and will become clearer as the UK regulators develop a common position on their implementation.

Cyfoeth Naturiol Cymru Natural Resources Wales	**EPR Compliance Assessment Report**	**Report ID: CAR_NRW0032595**

This form will report compliance with your permit as determined by an NRW officer

Site	SOUTH HOOK LIQUEFIED NATURAL GAS TERMINAL	Permit Ref	XP3538LD
Operator/Permit holder	South Hook LNG Terminal Company Ltd.	Date	07/12/2017

Section 3 – Enforcement Response

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Criteria Ref.	**CCS Category**	**Action required/advised**	**Due Date**
See Section 1 above			

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- Ensure you comply with other legislative provisions which may apply

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CCS category	Description	Score
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Welsh Language
If you would like this form in Welsh please contact your Regulatory Officer.

Compliance Assessment Report

Report ID: CAR_NRW0032782

This form will report compliance with your permit as determined by an NRW officer					
Site	SOUTH HOOK LIQUEFIED NATURAL GAS TERMINAL	Permit Ref	XP3538LD		
Operator/Permit holder	South Hook LNG Terminal Company Ltd.				
Regime	Installations				
Date of assessment	07/12/2017	Time in	14:00	Out	16:00
Assessment type	Audit				
Parts of the permit assessed	See below				
Lead officer's name	Broom, Mark				
Accompanied by					
Recipient's name/position	Dr Shane Evans/ Senior Environment Officer, SHLNG	Date issued	29/01/2018		

Section 1 – Compliance Assessment Summary

This is based on the requirements of the permit under the Environmental Permitting Regulations or the licence under the Water Resources Act 1991 as amended by the Water Act 2003. A detailed explanation is captured in "Compliance Assessment Report Detail" (Section 2) and any actions you may need to take are given in the "Action(s)" (section 4). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our Compliance Classification Scheme (CCS). CCS Scores can be consolidated or suspended where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your local office.

Permit conditions and compliance summary	**CCS Category**	**Condition(s) breached**

KEY: See Section 5 for breach categories, suspended scores will be indicated as such.
A = Assessed or assessed in part (no evidence of non-compliance), **X** = Action only,
O = Ongoing non-compliance, not scored.

Number of breaches recorded	**0**	**Total compliance score** (see section 5 for scoring scheme)	0

If the Number of breaches recorded is greater than zero, please see Section 3 for our proposed enforcement response

Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- The part(s) of the permit that were assessed (eg. Maintenance, training, combustion plant, etc)
- Where the type of assessment was 'Data Review' details of the report/results triggering the assessment
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- Details of advice given
- Any other areas of concern
- Any actions requested
- Any examples of good practice
- A reference to photos taken

Meeting to discuss and review the soil and ground water monitoring proposals with SHLNG (Dr S Evans) and their contractor Dr A Green (RPS, by phone).

SHLNG have a network of ground water monitoring locations and a history of results. Previously it had been identified that it was not clear how the work that SHLNG does complies with their permit requirements in condition 3.1.3. SHLNG and their contractors RPS have been developing proposals to address this uncertainly. The approach taken has been based on the EU guidance in this issue (2014/C 136/03 -

http://eurlex.europa.eu/legalcontent/EN/TXT/HTML/?uri=CELEX:52014XC0506(01)&from=EN)

This is an eight-stage process. The approach taken by SHLNG (and their contractors) used this process to identify the substances and areas at risk.

Since the meeting, SHLNG submitted their monitoring proposals on 18 December 2017 document reference 171215LJER5575UAGGWMPRev3. As the proposals meets the IED guidance on this issue, it satisfies condition 3.1.3. This conclusion was emailed through to SHLNG on 8/12/17.

For the ground water aspects as the SHLNG site used to be an oil refinery, any approach should be cognisant of that potential historic risk. One way of taking that into account is the use of discernibility which used to be included in the old GP04 ground water guidance. The approach used could include the concept of discernibility and references to this issue in your programme. The link below is a useful starting point on discernibility and ground water –

https://www.gov.uk/government/publications/groundwater-protection-technical-guidance/groundwater-protection-technical-guidance

This conclusion was emailed through to SHLNG on 19/1/18.
The implementation of the Large combustion plant BAT conclusions and also the Medium combustion plant directive was also discussed. It looks like the Large combustion plant BATcs will not apply to SHLNG because it is not a chapter 3 large combustion plant. NRW and fellow regulators may only apply the general BATcs to the chapter 2 combustion plant that SHLNG are described in IED. It is still not clear how MCPD will be regulated in Wales but it is likely that MCPD may not apply to already permitted sites.

Conclusions

A useful meeting to review the soil and ground water proposals being developed by SHLNG and their contractor.

Cyfoeth Naturiol Cymru Natural Resources Wales	**EPR Compliance Assessment Report**	**Report ID: CAR_NRW0032782**

This form will report compliance with your permit as determined by an NRW officer

Site	SOUTH HOOK LIQUEFIED NATURAL GAS TERMINAL	Permit Ref	XP3538LD
Operator/Permit holder	South Hook LNG Terminal Company Ltd.	Date	07/12/2017

Section 3 – Enforcement Response

You must take immediate action to rectify any non-compliance and prevent repetition.
Non-compliance with your permit conditions constitutes an offence and can result in criminal prosecutions and/or suspension or revocation of a permit. Please read the detailed assessment in Section 2 and the steps you need to take in Section 4 below.

Section 4 – Action(s)

This section summarises the actions identified during the assessment along with the timescales for when they will need to be completed.

Criteria Ref.	**CCS Category**	**Action required/advised**	**Due Date**
See Section 1 above			

Section 5 – Compliance notes for the Operator

To ensure you correct actual or potential non-compliance we may

- Advise on corrective actions verbally or in writing
- Require you to take specific actions verbally or in writing
- Issue a notice
- Require you to review your procedures or management system
- Change some of the conditions of your permit
- Decide to undertake a full review of your permit

Any breach of a permit condition is an offence and we may take legal action against you

- We will normally provide advice and guidance to assist you to come back into compliance either after an offence is committed or where we consider that an offence is likely to be committed. This is without prejudice to any other enforcement response that we consider may be required.
- Enforcement action can include the issue of a formal caution, prosecution, the service of a notice and/or suspension or revocation of the permit.

See our Enforcement and Civil Sanctions guidance for further information

This report does not relieve the site operator of the responsibility to

- Ensure you comply with the conditions of the permit at all times and prevent pollution of the environment
- Ensure you comply with other legislative provisions which may apply

Non-compliance scores and categories

CCS category	Description	Score
C1	A non-compliance that could have a major environmental effect	60
C2	A non-compliance which could have a significant environmental effect	31
C3	A non-compliance which could have a minor environmental effect	4
C4	A non-compliance which has no potential environmental effect	0.1

Operational Risk Appraisal (Opra) - Compliance assessment findings may affect your Opra score and/or your charges. This score influences the resource we use to assess permit compliance.

Section 6 – General information

Data protection notice

The information on this form will be processed by the Natural Resources Wales (NRW) to fulfil its regulatory and monitoring functions and to maintain the relevant public register(s). The NRW may also use and/or disclose it in connection with:

- Offering/providing you with its literature/services relating to environmental matters
- Consulting with the public, public bodies and other organisations (eg. Health and Safety Executive, local authorities) on environmental issues
- Carrying out statistical analysis, research and development on environmental issues
- Providing public register information to enquirers
- Investigating possible breaches of environmental law
- Assessing customer service satisfaction and improving its service
- Freedom of Information Act/Environmental Regulations request

The NRW may pass it on to its agents/representatives to do these things on its behalf. You should ensure that any persons named on this form are informed of the contents of this data protection notice.

Disclosure of information

The NRW will provide a copy of this report to the public register(s). However, if you consider that any information contained in this report should not be released to the public register(s) on the grounds of commercial confidentiality, you must write to your local area office within fifteen working days of receipt of this form indicating which information it concerns and why it should not be released, giving your reasons in full.

Customer charter

What can I do if I disagree with this compliance assessment report?

If you are unable to resolve the issue with your site officer, you should firstly discuss the matter with officer's line managers using the informal appeals procedure. If you wish to raise your dispute further through our official Complaints and Commendations procedure, phone our general enquiry number 0300 065 3000 (Mon to Fri 08.00 – 18.00) and ask for the Customer Contact team or send an email to enquiries@naturalresourceswales.gov.uk. If you are still dissatisfied you can make a complaint to the Public Services Ombudsman for Wales. For advice on how to complain to the Ombudsman phone their helpline on 0845 607 0987.

Welsh Language
If you would like this form in Welsh please contact your Regulatory Officer.

Cyfoeth Naturiol Cymru Natural Resources Wales

Compliance Assessment Report

Report ID: CAR_NRW0032786

This form will report compliance with your permit as determined by an NRW officer					
Site	SOUTH HOOK LIQUEFIED NATURAL GAS TERMINAL	Permit Ref	XP3538LD		
Operator/Permit holder	South Hook LNG Terminal Company Ltd.				
Regime	Installations				
Date of assessment	26/01/2018	Time in	N/A	Out	N/A
Assessment type	Report/Data Review				
Parts of the permit assessed	See below				
Lead officer's name	Broom, Mark				
Accompanied by					
Recipient's name/position	Dr Shane Evans/ Senior Environment Officer, SHLNG	Date issued	29/01/2018		

Section 1 – Compliance Assessment Summary

This is based on the requirements of the permit under the Environmental Permitting Regulations or the licence under the Water Resources Act 1991 as amended by the Water Act 2003. A detailed explanation is captured in "Compliance Assessment Report Detail" (Section 2) and any actions you may need to take are given in the "Action(s)" (section 4). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our Compliance Classification Scheme (CCS). CCS Scores can be consolidated or suspended where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your local office.

Permit conditions and compliance summary	CCS Category	Condition(s) breached
E1 - Emissions - Air	A	
E3 - Emissions - Surface water	A	
G1 - Monitoring and Records, Maintenance and Reporting - Monitoring of emissions and environment	A	
G4 - Monitoring and Records, Maintenance and Reporting - Reporting and notification to Natural Resources Wales	A	

KEY: See Section 5 for breach categories, suspended scores will be indicated as such.
A = Assessed or assessed in part (no evidence of non-compliance), **X** = Action only,
O = Ongoing non-compliance, not scored.

Number of breaches recorded	0	Total compliance score (see section 5 for scoring scheme)	0

If the Number of breaches recorded is greater than zero, please see Section 3 for our proposed enforcement response

Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- The part(s) of the permit that were assessed (eg. Maintenance, training, combustion plant, etc)
- Where the type of assessment was 'Data Review' details of the report/results triggering the assessment
- Any non-compliances identified
- Any non-compliances with directly applicable legislation
- Details of any multiple non-compliances
- Information on the compliance score accrued inc.
- Details of advice given
- Any other areas of concern
- Any actions requested
- Any examples of good practice
- A reference to photos taken

South Hook LNG are required to report their water discharge results every 6 months and their air releases annually to NRW at Llandarcy.

There were no non-compliance to air and water (E1 and E2) with the permit emission limit values and the monitoring was carried out to the required standards and frequencies (G1).

This report (SLNG-TS-ENV-C-547) was made on time, using the required formats and information (G4).

Cyfoeth Naturiol Cymru Natural Resources Wales	**EPR Compliance Assessment Report**	**Report ID: CAR_NRW0032786**

This form will report compliance with your permit as determined by an NRW officer

Site	SOUTH HOOK LIQUEFIED NATURAL GAS TERMINAL	Permit Ref	XP3538LD
Operator/Permit holder	South Hook LNG Terminal Company Ltd.	Date	26/01/2018

Section 3 – Enforcement Response

You must take immediate action to rectify any non-compliance and prevent repetition.
Non-compliance with your permit conditions constitutes an offence and can result in criminal prosecutions and/or suspension or revocation of a permit. Please read the detailed assessment in Section 2 and the steps you need to take in Section 4 below.

Section 4 – Action(s)

This section summarises the actions identified during the assessment along with the timescales for when they will need to be completed.

Criteria Ref.	**CCS Category**	**Action required/advised**	**Due Date**
See Section 1 above			

Section 5 – Compliance notes for the Operator

To ensure you correct actual or potential non-compliance we may

- Advise on corrective actions verbally or in writing
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- Enforcement action can include the issue of a formal caution, prosecution, the service of a notice and/or suspension or revocation of the permit.

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This report does not relieve the site operator of the responsibility to

- Ensure you comply with the conditions of the permit at all times and prevent pollution of the environment
- Ensure you comply with other legislative provisions which may apply

Non-compliance scores and categories

CCS category	Description	Score
C1	A non-compliance that could have a major environmental effect	60
C2	A non-compliance which could have a significant environmental effect	31
C3	A non-compliance which could have a minor environmental effect	4
C4	A non-compliance which has no potential environmental effect	0.1

Operational Risk Appraisal (Opra) - Compliance assessment findings may affect your Opra score and/or your charges. This score influences the resource we use to assess permit compliance.

Section 6 – General information

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- Investigating possible breaches of environmental law
- Assessing customer service satisfaction and improving its service
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Customer charter

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Welsh Language
If you would like this form in Welsh please contact your Regulatory Officer.

Compliance Assessment Report

Report ID: CAR_NRW0032788

This form will report compliance with your permit as determined by an NRW officer					
Site	SOUTH HOOK LIQUEFIED NATURAL GAS TERMINAL	Permit Ref	XP3538LD		
Operator/Permit holder	South Hook LNG Terminal Company Ltd.				
Regime	Installations				
Date of assessment	26/01/2018	Time in	N/A	Out	N/A
Assessment type	Report/Data Review				
Parts of the permit assessed	See below				
Lead officer's name	Broom, Mark				
Accompanied by					
Recipient's name/position	Dr Shane Evans/ Senior Environment Officer, SHLNG	Date issued	30/01/2018		

Section 1 – Compliance Assessment Summary

This is based on the requirements of the permit under the Environmental Permitting Regulations or the licence under the Water Resources Act 1991 as amended by the Water Act 2003. A detailed explanation is captured in "Compliance Assessment Report Detail" (Section 2) and any actions you may need to take are given in the "Action(s)" (section 4). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our Compliance Classification Scheme (CCS). CCS Scores can be consolidated or suspended where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your local office.

Permit conditions and compliance summary	CCS Category	Condition(s) breached
E1 - Emissions - Air	A	
E3 - Emissions - Surface water	A	
G1 - Monitoring and Records, Maintenance and Reporting - Monitoring of emissions and environment	A	
G4 - Monitoring and Records, Maintenance and Reporting - Reporting and notification to Natural Resources Wales	A	

KEY: See Section 5 for breach categories, suspended scores will be indicated as such.
A = Assessed or assessed in part (no evidence of non-compliance), **X** = Action only,
O = Ongoing non-compliance, not scored.

Number of breaches recorded	0	Total compliance score (see section 5 for scoring scheme)	0

If the Number of breaches recorded is greater than zero, please see Section 3 for our proposed enforcement response

Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- The part(s) of the permit that were assessed (eg. Maintenance, training, combustion plant, etc)
- Where the type of assessment was 'Data Review' details of the report/results triggering the assessment
- Any non-compliances identified
- Any non-compliances with directly applicable legislation
- Details of any multiple non-compliances
- Information on the compliance score accrued inc.
- Details of advice given
- Any other areas of concern
- Any actions requested
- Any examples of good practice
- A reference to photos taken

South Hook LNG are required by their permit (EPR/XP3538LD/V003, condition 4.2.2.a) to review their performance each year. This review has to be completed and submitted to NRW by 31st of January each year.

South Hook submitted a document (SHLNG-TS-ENV-C-548) by email on the 26/1/2018. The report reviews the performance of the monitored parameters against the relevant emission limit values to surface water (E3) and to air (E1). It was submitted by the deadline (G4).

NRW is currently interested in the releases of nutrients into the Haven waterway as increased levels of nitrogen and phosphate can lead to eutrophication of the waterway with consequential effects on the aquatic ecosystem. For this site the releases of nitrates from the submerged combustion vapourisers (SCVs) are a pollutant of concern to NRW because of their contribution to the nutrients in the Haven waterway.

Nitrates	Max daily concentration	Mean daily concentration	Max daily load	Daily load (annual

	mgN/l	in the year mgN/l	kgN/day	mean) kgN/day
ELV	50	N/A	100	50
2017 performance	12	8.4	7.4	2.4
% of ELV	24	N/A	7.4	4.8
2016 performance	15	11	13	5
% of ELV	30	N/A	13	10
2015 performance	19	12	20	8
% of ELV	38	N/A	20	16

The table above summaries the performance of the South Hook LNG site for nitrates for 2017, 2016 and 2015 against their permitted releases levels. In all cases the performance in 2017 was below (25%of the ELV) or well below the emission limit values (5% of the load ELV).

Last year 2017 has significantly lower release of nitrates compared to the previous years (2015 & 2016), The 2015 data was taken from report SHLNG-HSSEQ-C-484 and the 2016 data from report SHLNG-TS-ENV-C-521.

Cyfoeth Naturiol Cymru Natural Resources Wales	**EPR Compliance Assessment Report**	**Report ID: CAR_NRW0032788**

This form will report compliance with your permit as determined by an NRW officer

Site	SOUTH HOOK LIQUEFIED NATURAL GAS TERMINAL	Permit Ref	XP3538LD
Operator/Permit holder	South Hook LNG Terminal Company Ltd.	Date	26/01/2018

Section 3 – Enforcement Response

You must take immediate action to rectify any non-compliance and prevent repetition.
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Section 4 – Action(s)

This section summarises the actions identified during the assessment along with the timescales for when they will need to be completed.

Criteria Ref.	**CCS Category**	**Action required/advised**	**Due Date**
See Section 1 above			

Section 5 – Compliance notes for the Operator

To ensure you correct actual or potential non-compliance we may

- Advise on corrective actions verbally or in writing
- Require you to take specific actions verbally or in writing
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This report does not relieve the site operator of the responsibility to

- Ensure you comply with the conditions of the permit at all times and prevent pollution of the environment
- Ensure you comply with other legislative provisions which may apply

Non-compliance scores and categories

CCS category	Description	Score
C1	A non-compliance that could have a major environmental effect	60
C2	A non-compliance which could have a significant environmental effect	31
C3	A non-compliance which could have a minor environmental effect	4
C4	A non-compliance which has no potential environmental effect	0.1

Operational Risk Appraisal (Opra) - Compliance assessment findings may affect your Opra score and/or your charges. This score influences the resource we use to assess permit compliance.

Section 6 – General information

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- Carrying out statistical analysis, research and development on environmental issues
- Providing public register information to enquirers
- Investigating possible breaches of environmental law
- Assessing customer service satisfaction and improving its service
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Customer charter

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Welsh Language
If you would like this form in Welsh please contact your Regulatory Officer.

Cyfoeth Naturiol Cymru Natural Resources Wales

Compliance Assessment Report

Report ID: CAR_NRW0034617

This form will report compliance with your permit as determined by an NRW officer					
Site	SOUTH HOOK LIQUEFIED NATURAL GAS TERMINAL	Permit Ref	XP3538LD		
Operator/Permit holder	South Hook LNG Terminal Company Ltd.				
Regime	Installations				
Date of assessment	12/02/2019	Time in	N/A	Out	N/A
Assessment type	Report/Data Review				
Parts of the permit assessed	See below				
Lead officer's name	Broom, Mark				
Accompanied by					
Recipient's name/position	Shane Evans/ Senior Environmental Engineer	Date issued	12/02/2019		

Section 1 – Compliance Assessment Summary

This is based on the requirements of the permit under the Environmental Permitting Regulations or the licence under the Water Resources Act 1991 as amended by the Water Act 2003. A detailed explanation is captured in "Compliance Assessment Report Detail" (Section 2) and any actions you may need to take are given in the "Action(s)" (section 4). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our Compliance Classification Scheme (CCS). CCS Scores can be consolidated or suspended where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your local office.

Permit conditions and compliance summary	CCS Category	Condition(s) breached
E1 - Emissions - Air	A	
E3 - Emissions - Surface water	A	
G4 - Monitoring and Records, Maintenance and Reporting - Reporting and notification to Natural Resources Wales	A	

KEY: See Section 5 for breach categories, suspended scores will be indicated as such.
A = Assessed or assessed in part (no evidence of non-compliance), **X** = Action only,
O = Ongoing non-compliance, not scored.

Number of breaches recorded	0	Total compliance score (see section 5 for scoring scheme)	0

If the Number of breaches recorded is greater than zero, please see Section 3 for our proposed enforcement response

Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- The part(s) of the permit that were assessed (eg. Maintenance, training, combustion plant, etc)
- Where the type of assessment was 'Data Review' details of the report/results triggering the assessment
- Any non-compliances identified
- Any non-compliances with directly applicable legislation
- Details of any multiple non-compliances
- Information on the compliance score accrued inc.
- Details of advice given
- Any other areas of concern
- Any actions requested
- Any examples of good practice
- A reference to photos taken

South Hook LNG are required by their permit (EPR/XP3538LD/V003, condition 4.2.2.a) to review their performance each year. This review has to be completed and submitted to NRW by 31st of January each year.

South Hook submitted a document (SHLNG-TS-ENV-C-565) by email on the 25/1/2019. The report reviews the performance of the monitored parameters against the relevant emission limit values to surface water (E3) and to air (E1). It was submitted by the deadline (G4).

NRW is currently interested in the releases of nutrients into the Haven waterway as increased levels of nitrogen and phosphate can lead to eutrophication of the waterway with consequential effects on the aquatic ecosystem. For this site the releases of nitrates from the submerged combustion vapourisers (SCVs) are a pollutant of concern to NRW because of their contribution to the nutrients in the Haven waterway.

Nitrates	Max daily concentration mgN/l	Mean daily concentration in the year mgN/l	Max daily load kgN/day	Daily load (annual mean) kgN/day
ELV	50	N/A	100	50
2018 performance	19	9.4	4.48	1.07

% of ELV	38	N/A	4.48	2.14
2017 performance	12	8.4	7.4	2.4
% of ELV	24	N/A	7.4	4.8
2016 performance	15	11	13	5
% of ELV	30	N/A	13	10
2015 performance	19	12	20	8
% of ELV	38	N/A	20	16

The table above summaries the performance of the South Hook LNG site for nitrates for 2018, 2017, 2016 and 2015 against their permitted releases levels.

Last year 2018 had high daily concentrations of Nitrogen being released but lower load releases of nitrates compared to the previous years (2015, 2016, 2017). 2018 results were the lowest annual mean load released for the past 4 years.

The 2015 data was taken from report SHLNG-HSSEQ-C-484,the 2016 data from report SHLNG-TS-ENV-C-521 and the 2017 data came from report SHLNG-TS-ENV-C-548.

Cyfoeth Naturiol Cymru Natural Resources Wales	**EPR Compliance Assessment Report**	**Report ID: CAR_NRW0034617**

This form will report compliance with your permit as determined by an NRW officer

Site	SOUTH HOOK LIQUEFIED NATURAL GAS TERMINAL	Permit Ref	XP3538LD
Operator/Permit holder	South Hook LNG Terminal Company Ltd.	Date	12/02/2019

Section 3 – Enforcement Response

You must take immediate action to rectify any non-compliance and prevent repetition.
Non-compliance with your permit conditions constitutes an offence and can result in criminal prosecutions and/or suspension or revocation of a permit. Please read the detailed assessment in Section 2 and the steps you need to take in Section 4 below.

Section 4 – Action(s)

This section summarises the actions identified during the assessment along with the timescales for when they will need to be completed.

Criteria Ref.	**CCS Category**	**Action required/advised**	**Due Date**
See Section 1 above			

Section 5 – Compliance notes for the Operator

To ensure you correct actual or potential non-compliance we may

- Advise on corrective actions verbally or in writing
- Require you to take specific actions verbally or in writing
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Any breach of a permit condition is an offence and we may take legal action against you

- We will normally provide advice and guidance to assist you to come back into compliance either after an offence is committed or where we consider that an offence is likely to be committed. This is without prejudice to any other enforcement response that we consider may be required.
- Enforcement action can include the issue of a formal caution, prosecution, the service of a notice and/or suspension or revocation of the permit.

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This report does not relieve the site operator of the responsibility to

- Ensure you comply with the conditions of the permit at all times and prevent pollution of the environment
- Ensure you comply with other legislative provisions which may apply

Non-compliance scores and categories

CCS category	Description	Score
C1	A non-compliance that could have a major environmental effect	60
C2	A non-compliance which could have a significant environmental effect	31
C3	A non-compliance which could have a minor environmental effect	4
C4	A non-compliance which has no potential environmental effect	0.1

Operational Risk Appraisal (Opra) - Compliance assessment findings may affect your Opra score and/or your charges. This score influences the resource we use to assess permit compliance.

Section 6 – General information

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Welsh Language
If you would like this form in Welsh please contact your Regulatory Officer.

Compliance Assessment Report

Report ID: CAR_NRW0034622

This form will report compliance with your permit as determined by an NRW officer					
Site	SOUTH HOOK LIQUEFIED NATURAL GAS TERMINAL	Permit Ref	XP3538LD		
Operator/Permit holder	South Hook LNG Terminal Company Ltd.				
Regime	Installations				
Date of assessment	12/02/2019	Time in	N/A	Out	N/A
Assessment type	Report/Data Review				
Parts of the permit assessed	See below				
Lead officer's name	Broom, Mark				
Accompanied by					
Recipient's name/position	Shane Evans/ Senior Environmental Engineer	Date issued	12/02/2019		

Section 1 – Compliance Assessment Summary

This is based on the requirements of the permit under the Environmental Permitting Regulations or the licence under the Water Resources Act 1991 as amended by the Water Act 2003. A detailed explanation is captured in "Compliance Assessment Report Detail" (Section 2) and any actions you may need to take are given in the "Action(s)" (section 4). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our Compliance Classification Scheme (CCS). CCS Scores can be consolidated or suspended where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your local office.

Permit conditions and compliance summary	CCS Category	Condition(s) breached
E1 - Emissions - Air	A	
E3 - Emissions - Surface water	A	
G1 - Monitoring and Records, Maintenance and Reporting - Monitoring of emissions and environment	A	
G4 - Monitoring and Records, Maintenance and Reporting - Reporting and notification to Natural Resources Wales	A	

KEY: See Section 5 for breach categories, suspended scores will be indicated as such.
A = Assessed or assessed in part (no evidence of non-compliance), **X** = Action only,
O = Ongoing non-compliance, not scored.

Number of breaches recorded	0	Total compliance score (see section 5 for scoring scheme)	0

If the Number of breaches recorded is greater than zero, please see Section 3 for our proposed enforcement response

Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- The part(s) of the permit that were assessed (eg. Maintenance, training, combustion plant, etc)
- Where the type of assessment was 'Data Review' details of the report/results triggering the assessment
- Any non-compliances identified
- Any non-compliances with directly applicable legislation
- Details of any multiple non-compliances
- Information on the compliance score accrued inc.
- Details of advice given
- Any other areas of concern
- Any actions requested
- Any examples of good practice
- A reference to photos taken

South Hook LNG are required to report their water discharge results every 6 months and their air releases annually to NRW.

There were no non-compliances to air and water (E1 and E2) with the permit emission limit values and the monitoring was carried out to the required standards and frequencies (G1).

This report (SLNG-TS-ENV-C-564) was made on time (24/1/2019), using the required formats and information (G4). Due to a more accurate and lower energy usage figure being available after the original submission, a revised version was submitted (SLNG-TS-C-564b) was made on 4/2/2019.

Cyfoeth Naturiol Cymru Natural Resources Wales	**EPR Compliance Assessment Report**	**Report ID: CAR_NRW0034622**

This form will report compliance with your permit as determined by an NRW officer

Site	SOUTH HOOK LIQUEFIED NATURAL GAS TERMINAL	Permit Ref	XP3538LD
Operator/Permit holder	South Hook LNG Terminal Company Ltd.	Date	12/02/2019

Section 3 – Enforcement Response

You must take immediate action to rectify any non-compliance and prevent repetition.
Non-compliance with your permit conditions constitutes an offence and can result in criminal prosecutions and/or suspension or revocation of a permit. Please read the detailed assessment in Section 2 and the steps you need to take in Section 4 below.

Section 4 – Action(s)

This section summarises the actions identified during the assessment along with the timescales for when they will need to be completed.

Criteria Ref.	**CCS Category**	**Action required/advised**	**Due Date**
See Section 1 above			

Section 5 – Compliance notes for the Operator

To ensure you correct actual or potential non-compliance we may

- Advise on corrective actions verbally or in writing
- Require you to take specific actions verbally or in writing
- Issue a notice
- Require you to review your procedures or management system
- Change some of the conditions of your permit
- Decide to undertake a full review of your permit

Any breach of a permit condition is an offence and we may take legal action against you

- We will normally provide advice and guidance to assist you to come back into compliance either after an offence is committed or where we consider that an offence is likely to be committed. This is without prejudice to any other enforcement response that we consider may be required.
- Enforcement action can include the issue of a formal caution, prosecution, the service of a notice and/or suspension or revocation of the permit.

See our Enforcement and Civil Sanctions guidance for further information

This report does not relieve the site operator of the responsibility to

- Ensure you comply with the conditions of the permit at all times and prevent pollution of the environment
- Ensure you comply with other legislative provisions which may apply

Non-compliance scores and categories

CCS category	Description	Score
C1	A non-compliance that could have a major environmental effect	60
C2	A non-compliance which could have a significant environmental effect	31
C3	A non-compliance which could have a minor environmental effect	4
C4	A non-compliance which has no potential environmental effect	0.1

Operational Risk Appraisal (Opra) - Compliance assessment findings may affect your Opra score and/or your charges. This score influences the resource we use to assess permit compliance.

Section 6 – General information

Data protection notice

The information on this form will be processed by the Natural Resources Wales (NRW) to fulfil its regulatory and monitoring functions and to maintain the relevant public register(s). The NRW may also use and/or disclose it in connection with:

- Offering/providing you with its literature/services relating to environmental matters
- Consulting with the public, public bodies and other organisations (eg. Health and Safety Executive, local authorities) on environmental issues
- Carrying out statistical analysis, research and development on environmental issues
- Providing public register information to enquirers
- Investigating possible breaches of environmental law
- Assessing customer service satisfaction and improving its service
- Freedom of Information Act/Environmental Regulations request

The NRW may pass it on to its agents/representatives to do these things on its behalf. You should ensure that any persons named on this form are informed of the contents of this data protection notice.

Disclosure of information

The NRW will provide a copy of this report to the public register(s). However, if you consider that any information contained in this report should not be released to the public register(s) on the grounds of commercial confidentiality, you must write to your local area office within fifteen working days of receipt of this form indicating which information it concerns and why it should not be released, giving your reasons in full.

Customer charter

What can I do if I disagree with this compliance assessment report?

If you are unable to resolve the issue with your site officer, you should firstly discuss the matter with officer's line managers using the informal appeals procedure. If you wish to raise your dispute further through our official Complaints and Commendations procedure, phone our general enquiry number 0300 065 3000 (Mon to Fri 08.00 – 18.00) and ask for the Customer Contact team or send an email to enquiries@naturalresourceswales.gov.uk. If you are still dissatisfied you can make a complaint to the Public Services Ombudsman for Wales. For advice on how to complain to the Ombudsman phone their helpline on 0845 607 0987.

Welsh Language
If you would like this form in Welsh please contact your Regulatory Officer.

Appendix E
CONTAMINANT AFFECTED AREAS

N

Key

- Landfill Area - (containing asbestos)
- Proposed buildings

pipes

- Pipe Duct
- Pipe Rack
- Roads
- Conservation & Landscape Management Area
- Bunds
- Main excavation area
- Contaminant Affected Areas Remaining - CAUTION
- Contaminant Affected Areas Removed During Site Prep some residual may remain - CAUTION

RPS Planning, Transport and Environment

Conrad House
Beaufort Square
Chepstow
Monmouthshire
NP16 5EP

Tel: 01291 621821
Fax: 01291 627827
email: rpssw@rpsplc.co.uk

RPS Drawing No;
JER2580-AV-138d

REV.	DATE	DRN.	CHKD	APPVD.	DESCRIPTION
e	13/07/04				Approved for Construction
d	23/01/04	RN			Removal areas amended
c	19/12/03	RN			Landfill added
b	24/11/03	RN			Title block changed
a	06/11/03	RN			General amendments

M.W. Kellogg Limited

Qatargas II Development

TITLE: Areas of Identified Contamination

South Hook LNG Terminal

SCALE 1:2,500

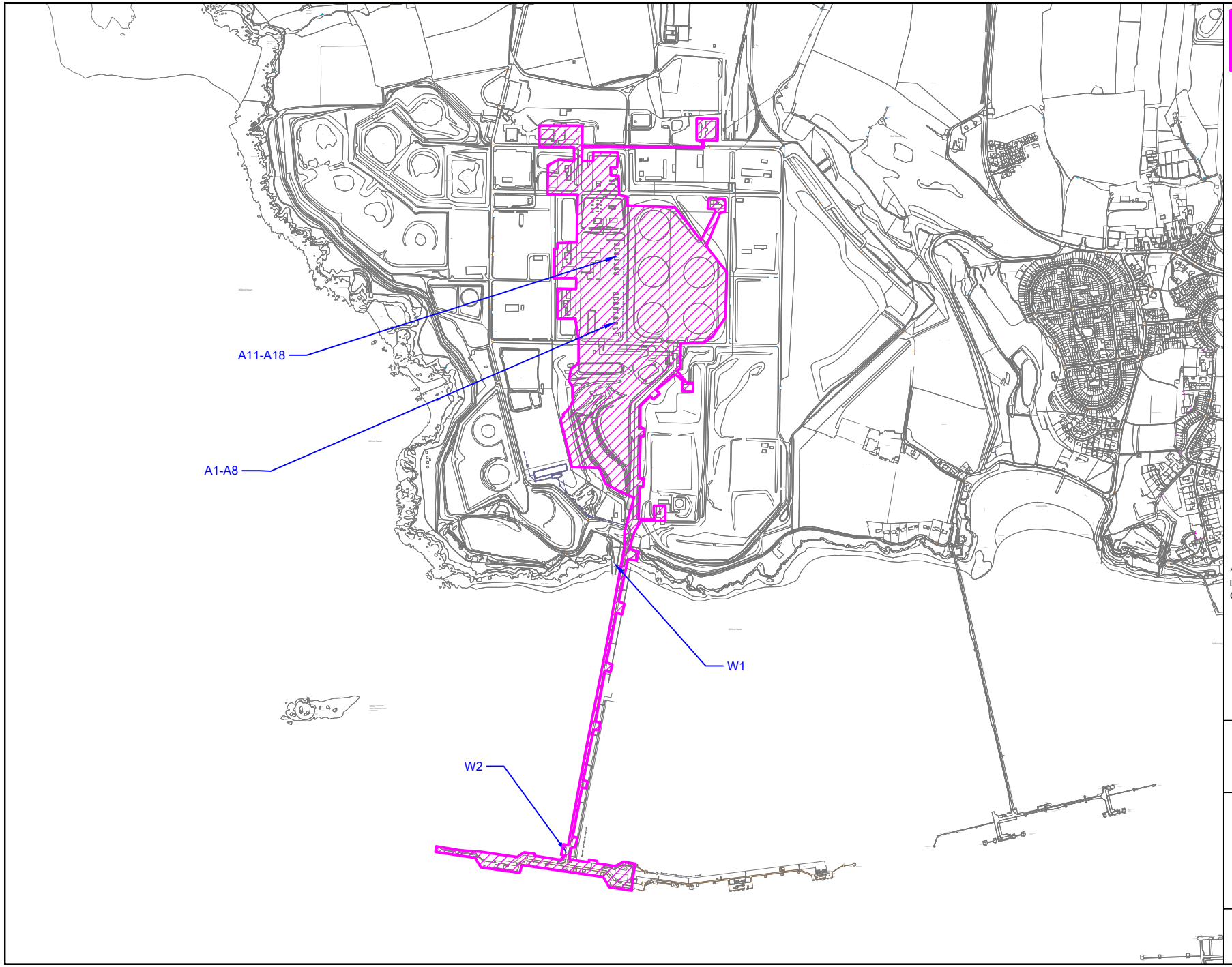
JOB NO. 5806

SIZE A0

DRAWING NO. 203/40/45/CI/DR/PL/066

REV. E

Appendix F
PROPOSED SITE BOUNDARY



South Hook LNG Terminal Installation Boundary

*These areas will be subject to a variation from the LNG Terminal to surrender the areas for use of the CHP Plant.

Notes

1. This drawing has been prepared in accordance with the scope of RPS's appointment with its client and is subject to the terms and conditions of that appointment. RPS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.
2. If received electronically it is the recipient's responsibility to print to correct scale. Only written dimensions should be used.

RPS

6-7 Lovers Walk Brighton & Hove East Sussex BN1 6AH
T 01273 546800 F 01273 546801 E rpsbn@rpsgroup.com W www.rpsgroup.com

Client: South Hook CHP Plant Ltd

Project: South Hook CHP Plant

Title: Plan showing illustrative CHP Plant and LNG Terminal installation boundaries

Date: 24/11/22 Scale: Not to scale

Drawn: JP Checked: JS Job Ref: JAS6495

Figure Number: 2 Rev: 10

rpsgroup.com

Appendix G
SUBSTANCE HANDLING PROCEDURE

SOUTH HOOK
LNG TERMINAL COMPANY LTD

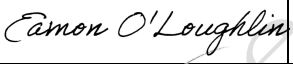
SOUTH HOOK
LNG TERMINAL COMPANY LTD
The way we work
SHEMS
SAFETY & SECURITY
HEALTH
ENVIRONMENT

Hazardous Waste Store Management

Criticality:	**MEDIUM**
Document No.:	**PE.06C.01.002.00**
System Administrator	
Title: Senior Environmental Engineer	Name: Shane Evans
System Owner	
Title: Technical Services Manager	Name: Ken Hurley

Rev. No.	Effective Date	Description	Revalidation Date
03	01/10/2021	Minor amendments throughout, to give additional information on the management of hazardous waste.	01/10/2024

Approvals

Action	Name	Position	Signature	Date
Issued by	Ghislaine Davies	Business Services Co-ordinator		01.10.2021
Reviewed by	Leanne Johnson	SHEMS Representative		01/10/2021
Accepted by	Eamon O'Loughlin	Health & Safety Officer		05/10/2021
Approved by	Ken Hurley	Technical Services Manager		04/10/2021

Revision History

Rev. No.	Date	Description
00	June 2019	First Issue
01	28/08/2020	Document transferred from System 6A, previously WA.06A.00.012
02	11/02/2021	SHEMS Quality Journey Project – Template Update
03	01/10/2021	Minor amendments throughout, to give additional information on the management of hazardous waste.

Table of Contents

Contents

Appendices

Tables

1. Overview

1.1 Purpose

The purpose of this procedure is to ensure that all South Hook LNG (SHLNG) staff and contractors are informed of the designated storage and collection areas for hazardous waste streams.

1.2 Scope

This procedure is applicable to people who use the Hazardous Waste Store (HWS) in SHLNG.

1.3 Hazards and Mitigations

The key hazards and relevant mitigations for this document are listed in the table below:

Hazards	Mitigations
• Contamination from incorrectly stored waste	• Correct storage following the guidance within this procedure including the use of: – Use of suitable, sealable containers or bags – Correct identification of waste materials using the Hazardous Waste Log and Internal Chain of Custody Labels • Vigilance throughput activities, strictly comply with the procedure steps and PPE requirements
• Potential contact with waste oils/ greases, glycol and other chemicals, oily water from bunds and interceptors, waste fats, oils and greases from cleaning canteen grease traps and drains, solid dry wastes; and other miscellaneous hazardous waste materials	•) Risk Assessment Method Statements, Safety Data sheets (SDS) and associated Control of Substances Hazardous to Health (COSHH) assessments. • Site Life Saving Rules, PTW.
• Loss of Primary Containment	• Strictly comply with the procedure steps • Continuously supervise transfer activities and monitor the effectiveness of Isolation Systems/ Schemes
• Fire	• Fire detection and alarm within HWS and passive fire protection.

Table 1. Hazards and Mitigations

1.4 Applicable Laws and Regulatory Requirements

There are a number of laws and regulation that apply to this SHEMS System to include but not be limited to:

- Directive 2012/19/EU on waste electrical and electronic equipment (WEEE) (recast). The Hazardous Waste (Miscellaneous Amendments) Regulations 2015 (SI 2015/1360).
- Environmental Protection Act 1990 (c. 43) Part II, section 34 as amended The Hazardous Waste (Miscellaneous Amendments) Regulations 2015 (SI 2015/1360).
- The Hazardous Waste (England and Wales) Regulations 2005 The Waste.
- (Meaning of Recovery) (Miscellaneous Amendments) Regulations 2016 (SI 2016/738) as amended.
- Directive 2008/98/EC on waste - The Waste Framework Directive, Commission Directive (EU) 2015/1127 amending Annex II.
- The Waste Batteries and Accumulators Regulations 2009 The Waste Batteries and Accumulators (Amendment) Regulations 2015 (SI 2015/1935).
- The Waste (England & Wales) Regulations 2011 (SI 2016/738) as amended.
- Control of Asbestos Regulations 2012 (SI 2015/21).

2. Responsibilities

2.1 Business Services Co-ordinator

The Business Services Co-ordinator is responsible for overseeing and managing the Hazardous Waste Store (HWS) including the collection and disposal of waste fuel/oil from the Waste IBC and Drum Store (WIDS) and for managing the contents of the HWS with support from the General Services Contractor.

2.2 All Personnel

All personnel are responsible for managing the handling, storing and segregation of any waste produced during their activities in the correct manner and ensuring their actions do not adversely impact SHLNG's HWS management arrangements thus preventing releases to land and water. If there is any doubt regarding the storage of waste in the Hazardous Waste Store, then clarity needs to be sought from the General Services Contractor.

Where possible inform the General Services Contractor in advance if large volumes of waste will be generated to ensure that the necessary resources and space are available to support the tasks.

Additionally, all SHLNG Superintendents, Supervisors and Contract Managers are also responsible for keeping oversight of their staff and contractors management of waste.

2.3 Process Supervisor

The Process Supervisor is responsible for providing support with access to the HWS during non-business hours.

2.4 General Services Contractor

The General Services Contractor is responsible for conducting a weekly visual check of the Hazardous Waste Store and reporting any anomalies to the Business Services Co-ordinator and Health and Safety Officer. Also for coordinating the collections from the HWS and maintaining our Waste Register as part of our Duty of Care.

3. Processes and Procedures

3.1 Process and Procedure Overview

Waste is generally considered hazardous if it (or the material or substances it contains) are harmful to humans or the environment. Waste is generally considered hazardous if it (or the material or substances it contains) are harmful to humans or the environment. Examples of hazardous waste include:

- Asbestos.
- Chemicals, such as brake fluid or print toner.
- Batteries.
- Solvents.
- Pesticides.
- Oils (except edible ones), such as car oil.
- Equipment containing ozone depleting substances, like fridges.
- Hazardous waste containers.
- WEEE.

SHLNG has a designated Hazardous Waste Store (HWS) and a separate Waste IBC and Drum Store (WIDS) for storage of IBC s and drums containing waste oils glycol etc. Both are situated north of the Maintenance Workshop. Both the HWS and the WIDS are segregated to accommodate different waste substances and waste containers As well as hazardous wastes the HWS and the WIDS provides storage for some non-hazardous wastes where there are no other suitable segregated storage facilities provided on site e.g. used cooking oils; Waste fats, oils and grease from kitchen grease trap cleaning.

It is a legal requirement to:

- Ensure waste is stored, transported and disposed correctly (See Appendix 4).
- Ensure that documentation relating to waste is maintained and stored for review and audit purposes.

Note: All waste deposited in the HWS must be recorded in the *Hazardous Waste Store Log (FM.06C.01.002.01)* which is located within the HWS and Chain of Custody Labels Completed (see section 3.3.2 Required Details) for miscellaneous solid and liquid waste.

3.2 SHLNG's Hazardous Waste Streams

3.2.1 Hazardous Liquid Waste

Hazardous Liquid wastes are predominantly produced by activities overseen by the Operations Department. The majority of hazardous liquid wastes associated with SHLNG activities are:

- Used Glycol.
- Used Oil.
- Oily water from bunds and interceptors around the Terminal.
- Waste fats, oils and greases from cleaning canteen grease traps and drains.
- Out of date and unused chemicals and oils.

Used Glycol and used oil are brought from site to in 1m^3 IBC's (intermediate bulk containers). They are stored in the Waste IBC and Drum Store (WIDS) (see Figure 1) which has an integral bund ready for collection by an approved contractor (in compliance GPP26 Safe storage of Drums and Intermediate Bulk Containers (IBCs).

Figure 1. Waste IBC and Drum Store - WIDS

Oily water from grease traps, bunds and interceptors around site are predominantly collected by the onsite vacuum tanker and deposited into IBC's. These IBC's are then stored in the Waste IBC and Drum Store.

Smaller containers of oil must be taken to the hazardous waste store for decanting into the dedicated double bunded 1m^3 oil receptacle. The HWS is also an approved storage are for Hazardous waste with bespoke bunding.

All other hazardous liquid waste of smaller volumes must be labelled using the Internal Chain of Custody Labels (see 3.3.2) and stored appropriately inside the Hazardous Waste Store.

3.2.2 Hazardous Solid Waste

Fluorescent lamps

All waste florescent lamp tubes must be kept in the HWS within the dedicated fluorescent tube containers. The light fitting are to be broken down into their component parts (where possible) in order to segregate e.g. batteries from plastic and to be disposed of correctly.

Batteries

The HWS provides segregated storage for small quantities of batteries including:

- Mixed domestic type batteries.
- Lead Acid batteries.
- Nickle Cadmium (Ni Cd).
- Lithium Ion.

All other batteries associated with equipment should be separated from the WEEE waste prior to depositing in the Hazardous Waste Store, e.g. fluorescent tube assemblies have dedicated emergency batteries. These must be separated from the body of the fluorescent tube assembly prior to disposal.

For large volumes of batteries (e.g. substation UPS battery) liaise with the General Services contractor to arrange suitable temporary storage and specialist collection.

Toner & Printer Cartridges

Toner and Printer cartridges are collected from all printers on site by General Services personnel on a monthly basis and deposited in the hazardous waste store for collection. The collection and recycling of the printer cartridges is performed under the IT contract and further information can be obtained from the IT section of the Business Services Department.

Oily Rags / Absorbent Material

Oil contaminated rags, booms, absorbents and rags (No oil filters, hydraulic hoses or other metal items). Please ensure that wastes are contained in sealed plastic bags and labelled if necessary. Ensure they are placed in the correctly labelled receptacle with in the HWS.

Hazardous Waste Packaging

Hazardous packaging (e.g. empty oil drums, paint tins etc.) is packaging which have previously contained hazardous chemicals and/or residues. Under Waste Management regulations these items are classified Hazardous. These are to be store in the HWS as hazardous waste.

Miscellaneous hazardous waste material.

The list of hazardous waste is extensive and all items cannot be captured here. However if there is unusual waste, place it in the quarantined area. There is a dedicated bunded receptacle with in the HWS for miscellaneous waste located on the right hand side of the door entrance. Identify the waste using the Chain of Custody label (see section 3.3.2) in the HWS and report it immediately to the General Services Contractor.

Note: *It is prohibited to use the NORM Store, adjacent the HWS as an overflow for any waste requiring disposal other than NORM Waste.*

3.2.3 Waste Electrical and Electronic Equipment (WEEE)

Pallet Boxes are provided for storage of a mixture of WEEE as listed below apart from larger items such as fridges. Computer monitors must be kept separate and stored separately.

- Large Electrical Appliances
  - e.g. fridges, cookers, microwaves, televisions.
- Small Electrical Appliances
  - e.g. vacuum cleaners, lamps, toasters and clocks.
- IT and Telecommunications Equipment (Computer monitors to be kept separate)
  - e.g. personal computers, copying equipment, telephones and pocket calculators, circuit boards.
- Consumer Equipment
  - e.g. radios, hi-fi equipment.
- Lighting Equipment

  - e.g. straight and compact fluorescent tubes and high intensity discharge lamps.

- Electrical and Electronic Tools
  - e.g. drills and saws.
- Medical Devices
  - e.g. (non infected) defibrillator dialysis machines, analysers, medical freezers and cardiology equipment.
- Monitoring and Control Equipment
  - e.g. smoke detectors, thermostats and heating regulators.
- Automatic Dispensers
  - e.g. hot drinks dispensers.

Note: Ensure that any batteries, light tubes and bulbs are removed and stored separately within the HWS.

Large appliances (eg ovens, fridges, washing machines) currently make up over 40% of WEEE but there are large volumes of other equipment such as IT equipment (mainly computers), electrical tools, digital watches and other electronic equipment.

Such items contain a wide variety of materials eg an average TV contains 6% metal and 50% glass, whereas a cooker is 89% metal and only 6% glass. Other materials found include plastics, ceramics and precious metals.

As a result of this complex mix of product types and materials, some of which are hazardous (including arsenic, cadmium, lead and mercury and certain flame retardants) WEEE recycling poses a number of health risks that need to be adequately managed.

3.3 Communication

3.3.1 Contact details

The HWS is managed by the Business Services Coordinator and General Services Contractor.

The hazardous waste store is open to all individuals on site, the door access code is **C1268.** If there are issues in relation to storage contact:

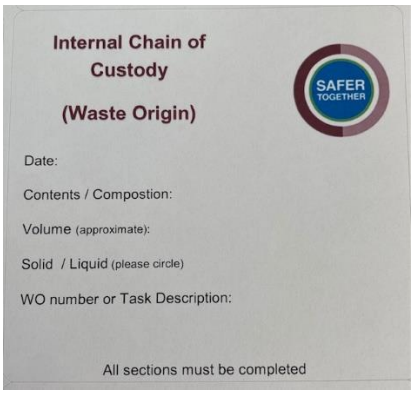
- Business Services Coordinator (2190 or 01437 782190).
- General Services Contractor (2006 or 01437 782006 / 2095 01437 782095 or Facilities Channel via site radio [business hours]).
- Process Supervisor (2127) out of business hours.

3.3.2 Required details

Labelled pallet boxes, clip top drums and shelving are provided in the HWS for appropriate segregated storage of wastes.

Labelled IBCs and drums are provided in the WIDS for appropriate segregated storage of waste oils. A Quarantine Box is provided within the HWS for temporary storage of waste if the depositor is unsure of which storage receptacle to use or if the waste is not immediately known. The depositor must contact the

General Services Contractor for further advice. The quarantined box is located to the right hand side of the main entrance door. Details of the waste should then be entered into the HWS Log Book (Appendix 3) and Internal Chain of Custody Labels completed (see figure 2) both of which are located above the box.



(Figure 2: Chain of Custody Labels)

If depositing any liquids or solids that do not have dedicated storage or are not clearly identifiable then these must be stored in either the HWS or WIDS. All items to be identifiable using theInternal Chain of Custody labels and HWS log book.

3.3.3 Equipment

The Warehouse stores empty IBC for use in carrying and transporting hazardous waste from site to the hazardous waste store. The Warehouse also stores:

- 5-litre and 25-litre containers (for decanting purposes).
- Spill management equipment, including ropes and booms.

Hazardous wastes must not be mixed with other incompatible hazardous wastes or with non-hazardous waste.

The Business Services Coordinator along with the General Services Contractor will schedule collection of the waste from the Hazardous Waste Store when required (see Appendix 4).

4. Additional Information

4.1 Acronyms and Definitions

The acronyms and definitions listed below apply throughout this document.

Term	Definition
HWS	Hazardous Waste Store
IBC	Intermediate Bulk containers
SHEMS	Safety, Security, Health and Environmental Management System (SHLNG system)
SHLNG	South Hook LNG Terminal.
SME	Subject Matter Expert
WEEE	Waste Electrical and Electronic Equipment (WEEE)
WIDS	Waste IBC and Drum Store

Table 2. Acronyms and Definitions

5. Appendices

Contents

Appendix 1 Reference Documents

Reference documents applicable to this procedure are listed in the table below.

Number	Title
SM.06C.01.000.00	Environmental Management Manual
SM.05B.06.000.00	Safety Practices

Appendix 2 Document Forms

SHEMS forms applicable to this procedure are listed in the table below.

Number	Title
FM.06C.01.002.01	Hazardous Waste Store Log

Appendix 3 Hazardous Waste Store Log

	Hazardous Waste Store Log	Form	FM.06C.01.002.01
		Revision	00
		Parent Document	PE.06C.01.002.00

Do not remove from Hazardous waste store

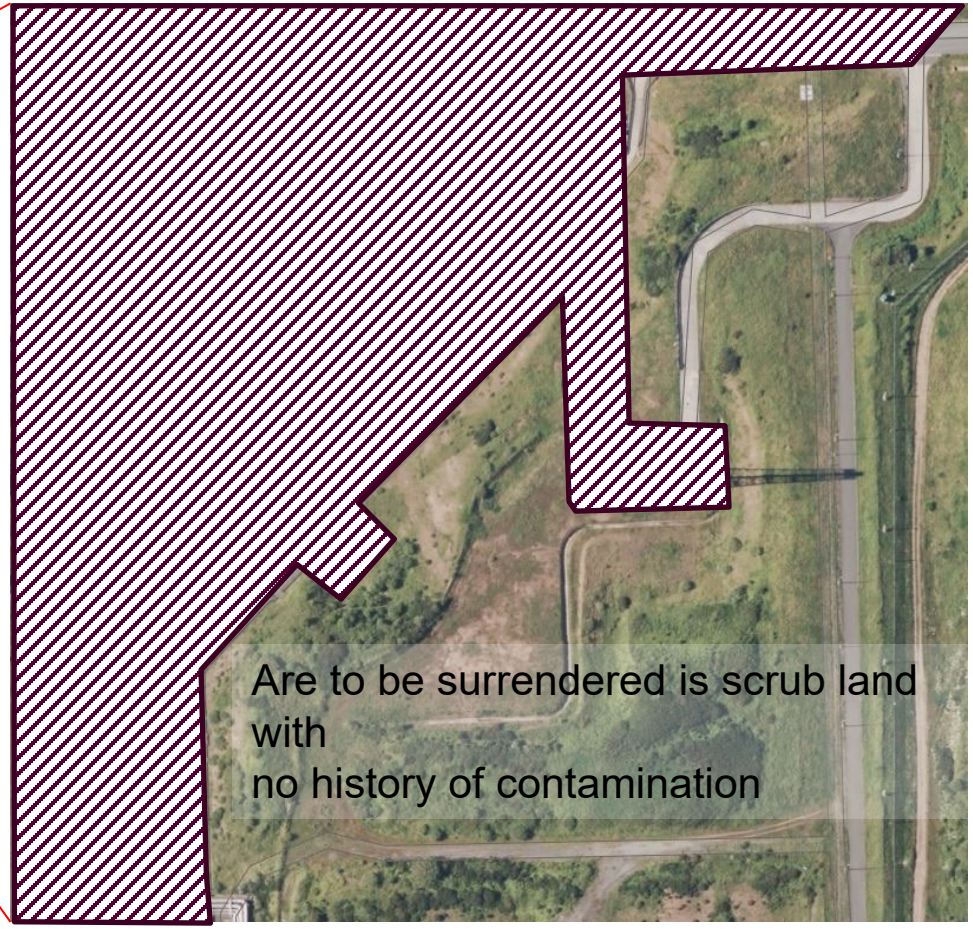
Date	Material type – be specific	Volume (estimate if not known)	Where has it come from	Section (e.g. I&C, mechanical, etc.)	Any additional info

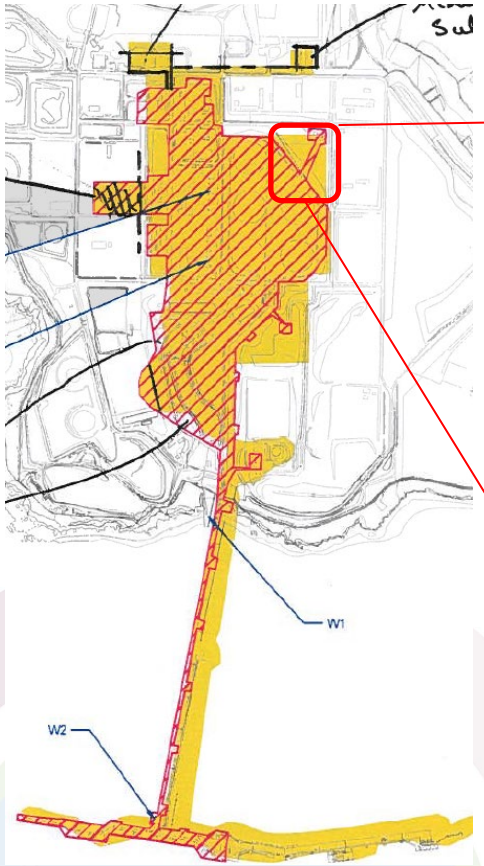
Appendix 4 Waste Disposal Flow

SHLNG requirements

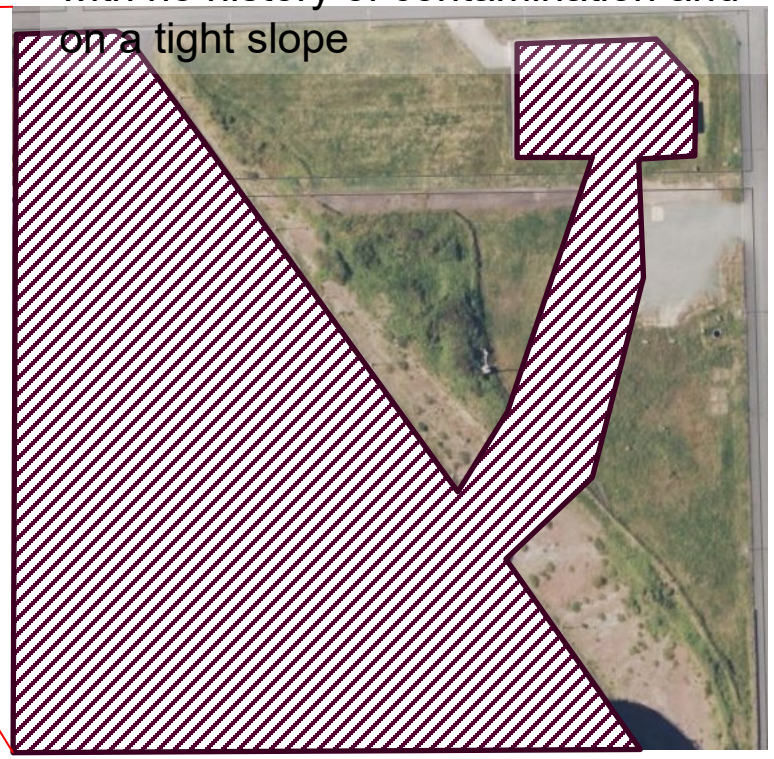
General Services requirements

Appendix H
IMAGES OF SURRENDER AREAS

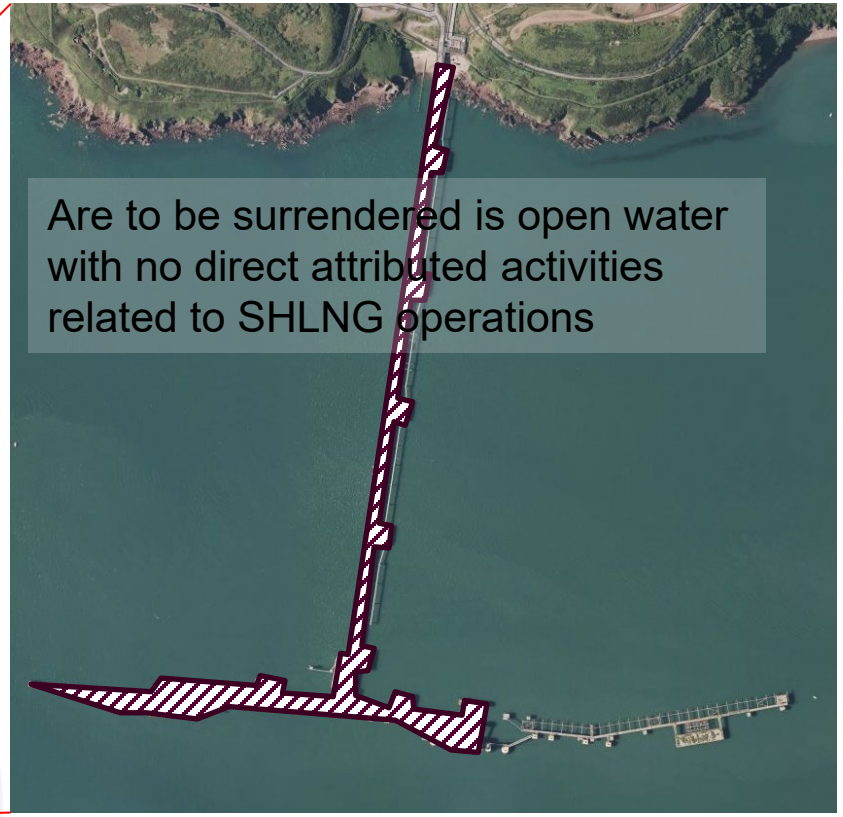


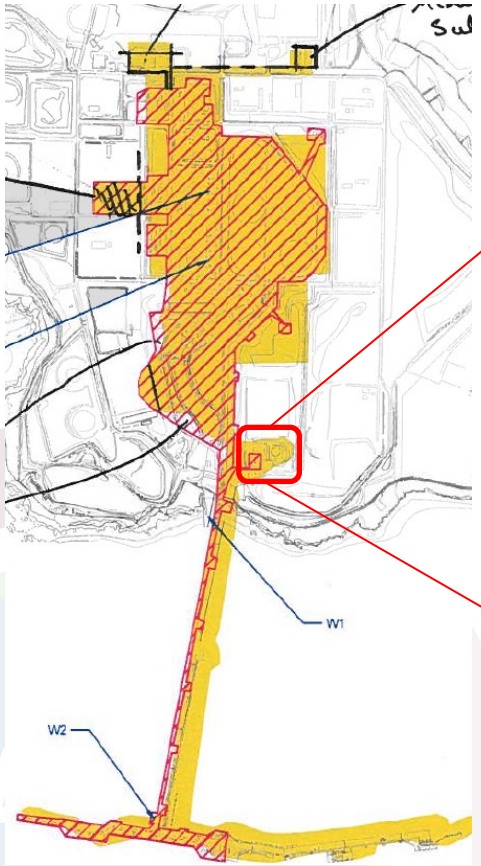


Are to be surrendered is scrub land with no history of contamination and on a tight slope



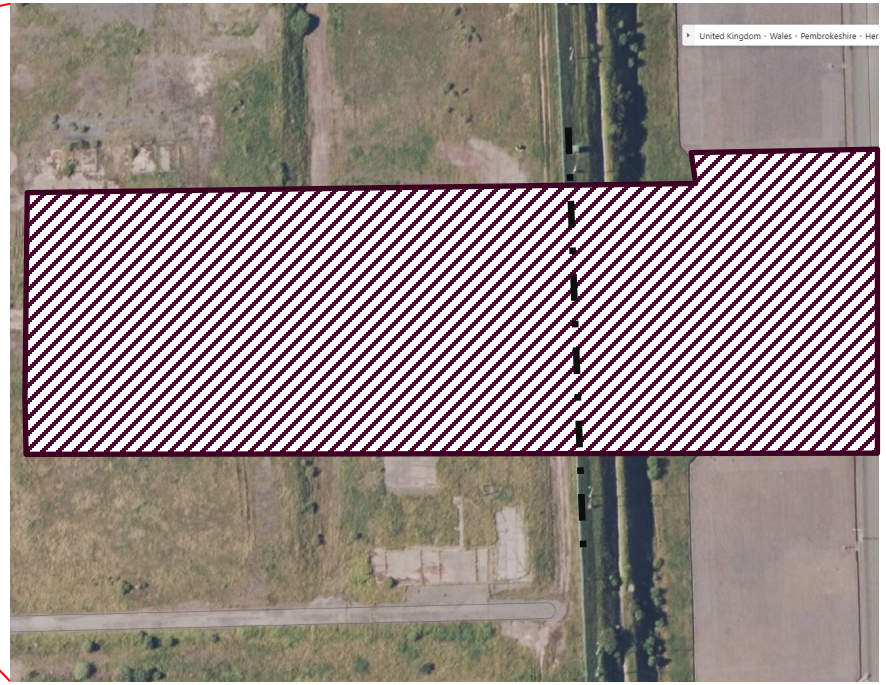

W1
W2


Are to be surrendered is open water with no direct attributed activities related to SHLNG operations



Area to be surrendered is the Firewater Pump house, firewater tank & scrub land, that has no direct attributable nature to the operations at SHLNG

Are to be surrendered is scrub land with no history of contamination



Appendix I
ENVIRONMENTAL RISK ASSESSMENT

Application to Vary Environmental Permit Reference EPR/XP3538LD – Environmental Risk Assessment

Uncontrolled if printed

1	11/09/2020	03	01/10/2020	For Information
Rev	**Date**	**Rev**	**Date**	Application to Vary Environmental Permit Reference EPR/XP3538LD – Environmental Risk Assessment
Document Number: TBC				

	Name:	Signature:
Prepared by:	Tim Colebrook (RPS)	
Authorised by:	Wayne Davies (RPS)	
Client approved by:	Elvan Akkaya	
Revision:	3	
Project Number:	JFR2002	
Document Reference:	Env Risk Assessment V3 R0_SHLNG Template - SHLNG 01.10.2020 Issued	
Document File Path:	O:\JFR2002 - Project Nwy\5. Reports\1. Draft Report\6. 2020 Permit Variation\Appendices\Appendix C - Environmental Risk Assessment	

Privacy, Confidentially and Commercial Sensitivity Provisions:

This report and associated supporting information are provided subject to the provisions set out below to support an Application to Vary EPR Environmental Permit Reference EPR/XP3538LD.

This report and the data it contains must not be used for any other purpose or be released to any third parties without the prior written approval of South Hook LNG Terminal Company LTD.

Please note that this information has been provided to Natural Resources Wales (NRW), in line with the legal requirements for variation to EPR Environmental Permit Reference EPR/XP3538LD, in the strictest confidence.

Contents

Tables

1. INTRODUCTION

1.1.1 This Environmental Risk Assessment (ERA) has been prepared to support an application for variation to environmental permit reference EPR/XP3538LD.

1.1.2 It provides a qualitative assessment of the potential risk to the environment and human health from the operation of a new submerged combustion vaporiser (SCV) and high pressure send out pump (HPSO) as well as for storage and use of raw materials associated with the permitted activities.

1.1.3 Guidance from Natural Resource Wales (NRW) How to comply with your environmental permit[1] covers a range of environmental risks. Those aspects relevant to the operation of the South Hook LNG Terminal Limited permitted installation are covered within the following sections

- Section 2 identifies sensitive receptors in proximity to the facility.
- Section 3 provides the environmental risk assessment of 'Amenity and Accidents' hazards associated with the variation.

[1] https://cdn.naturalresources.wales/media/2110/how-to-comply-with-your-environmental-permit.pdf?mode=pad&rnd=131467604540000000

2. SENSITIVE RECEPTORS

2.1.1 The site is located on the south Pembrokeshire coast near to Herbrandston and is surrounded by a number of sensitive conservation sites as detailed in tables 2.1 and 2.2 below.

Table 2.1: Receptors within 10 km

Site Type	Site Name
Site of Special Scientific Interest (SSSI)	Newgale to Little Haven Coast
	Angle Peninsula Coast
	Broomhill Burrows
	Castlemartin Corse
	Castlemartin Range
	Dale and South Marloes Coast
	St Bride's Bay South
	Marloes Mere
	Milford Haven Waterway
	Gweunydd Somerton Meadows
	Orielton Stable Block and Cellars
Special Areas of Conservation (SAC)	Limestone Coast of South West Wales
	West Wales Marine
	Pembrokeshire Marine
	Pembrokeshire Bat Sites and Bosherton Lakes
Special Protection Areas (SPA)	Castlemartin Coast
	Skokholm and Skomer

Table 2.2: Receptors within 2 km

Site Type	Site Name
SSSI	Milford Haven Waterway
SAC	Pembrokeshire Marine

3. ENVIRONMENTAL RISKS AND EFFECTS

3.1.1 The scope of the assessment has covered the following aspects:

- odour;
- noise and vibration;
- fugitive emissions;
- visible emissions; and
- accidents.

3.1.2 For each of the above, the approach to the assessment has followed the following four stage process:

1. identify the hazards;
2. assess the risks (assuming that any control measures proposed are in place);
3. choose appropriate further measures to control these risks (if required); and
4. present the assessment of overall risk.

3.1.3 Results of the assessment are provided in the following tables.

- Table 3.2 - Assessment of odour risks
- Table 3.3 - Assessment of noise and vibration risks
- Table 3.4 - Assessment of fugitive emission risks
- Table 3.5 - Visible emissions
- Table 3.6 - Accidents risk assessment and management plan

3.1.4 The risk assessment methodology has used a scoring mechanism whereby scores are assigned to:

- the likelihood of the hazard occurring; and
- the consequence of the hazard to the environment or human health.

3.1.5 Scores are assigned as very low, low, medium or high.

3.1.6 The risk assessment has been completed by scoring the hazard areas outlined above using a risk matrix as shown in Table 3.1 below.

3.1.7 In completing the assessment all prevention and control measures effected and implemented on a day to day basis by South Hook LNG Terminal Limited are assumed to be in place. Where relevant, details of these measures are identified within the assessment.

Table 3-1: Risk Matrix

Consequence	Probability of Exposure			
	High	Medium	Low	Very Low
High	High	Medium	Low	Low
Medium	Medium	Medium	Low	Very Low
Low	Low	Low	Low	Very Low
Very Low	Low	Very Low	Very Low	Very Low

3.1.8 The risk assessment has been completed by scoring the hazard areas outlined above using a risk matrix as shown in Table 3.1 below.

3.1.9 The environmental risk assessment for the site is set out below:

Table 3-2: Odour risk assessment and management plan

Hazard	Receptor	Pathway	Risk Management	Probability of exposure	Consequence	What is the overall risk?
Odour emissions from the permitted activities	Local residents (nearest receptors to the facility is approx. 950 m from permit boundary)	Air	The natural gas produced by the permitted process is not odorised. Additionally, there are no significant sources of odour associated with the permitted activities and therefore odour management procedures are not required. Natural gas produced from the LNG Terminal permitted installation is inherently odourless. During the 15+ years of site operation there have not been any odour complaints received by the site attributed to the permitted process. The proposed variation does not introduce any new materials or processes with the potential for significant odour. A Complaints procedure is in place and in the unlikely event of a complaint, the incident would be investigated and recorded in line with this procedure.	Very Low – Materials and processes are inherently low in odour potential	Low - Minor odour annoyance (at worst)	Very Low

Table 3-3: Noise and vibration risk assessment and management plan

Hazard	Receptor	Pathway	Risk Management	Probability of exposure	Consequence	What is the overall risk?
Noise from road transport vehicles movements onsite and offloading (such as reverse warnings)	Local residents (nearest receptors to the facility is approx. 950 m from permit boundary)	Air	There has been no history of noise complaints attributed to the facility relating to road transport. There will be no significant increase in vehicle movements associated with the delivery of the primary raw material and fuel namely, LNG, to the facility, as this will continue to be piped into site from LNG vessels moored at the LNG jetty. Complaints procedure in place and in the unlikely event of a complaint, the incident would be investigated and recorded in line with this procedure.	Very Low – Intermittent during operational hours.	Low - Intermittent noise nuisance	Very Low
Noise from the installation	Local residents (nearest receptors to the facility is approx. 950 m from permit boundary)	Air	The permitted process is proven not to be inherently noisy and there will be no significant change to the potential noise source footprint from plant in operation associated with this permit variation, compared to the current activities. Staff are trained to report any abnormal noise or vibration issues to management. Routine operator surveillance and planned preventative maintenance routinely assess fluctuations and would identify if any further controls are necessary. Complaints procedure in place and in the unlikely event of a complaint, the incident	Low	Low - Noise nuisance	Low

Hazard	Receptor	Pathway	Risk Management	Probability of exposure	Consequence	What is the overall risk?
			would be investigated and recorded in line with this procedure.			
Vibration from the plant	Local residents (nearest receptors to the facility is approx. 950 m from permit boundary)	Land	The permitted process is proven not to be a source of vibration. There is no change to the current operation. Complaints procedure in place and in the unlikely event of a complaint, the incident would be investigated and recorded in line with this procedure.	Low – vibration nuisance to local residents, businesses and members of the public.	Very Low - minimal vibration nuisance	Very Low

Table 3-4: Fugitive emissions risk assessment and management plan

Hazard	Receptor	Pathway	Risk Management	Probability of exposure	Consequence	What is the overall risk?
Air:						
Dust	Local residents (nearest receptors to the facility is approx. 950 m from permit boundary)	Air	The permitted process is proven not to be a source of dust. There will continue to be very little dusty raw materials in use at the site and few deliveries as the main raw material, LNG, will continue to be piped into site from LNG vessels moored at the LNG jetty. In the event of a complaint, SHLNG will follow a complaints procedure to record and act on the complaint.	Very Low	Very Low – Nuisance of dust on windows etc.	Very Low
Natural gas supply leakage	Atmosphere Local residents (nearest to the facility is approx. 950 m from permit boundary)	Air	The process infrastructure has been designed and constructed to an exceptionally high engineered standard to prevent leaks and risk of explosion. The South Hook LNG Terminal is a top tier COMAH site, subject to the Control of Major Accident Hazards (COMAH) Regulations. It is also fully ATEX and DSEAR compliant (Ref. The Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR) and EU directive ATEX 137) Gas supply pipework is subject to regular testing, Inspection and maintenance, in accordance with the Company's policies, procedure and safe systems of work,	Low due to engineered infrastructure and management systems in place	High – A gas leak could result in explosion or fire at the site. (See accidents section below for further details). Global warming potential of the site is increase if there is a gas leak.	Low

Hazard	Receptor	Pathway	Risk Management	Probability of exposure	Consequence	What is the overall risk?
			including Management of Change, Asset Integrity and Permit to Work. The installation is provided with fixed fire and gas detection systems, which support leak detection.			
Water:						
Leaks and spills from oil delivery and storage	Nearby watercourses (The Haven)	Surface water drainage systems, shallow groundwater and spring resurgence	Deliveries of relatively small volumes of oils and other chemicals used on site is overseen by trained site staff. Spill kits are available to contain and clean up any spillages should they occur, Lubricating oil storage will be within a bunded area to enable isolation of oil should leakage occur and prevent entry into surface water drainage or onto ground. Any fugitive emissions escaping the container will be captured by the site's drainage system which incorporates oil interception. Pollution prevention is supported the Terminal's policies and procedure and by the Terminal design, which incorporates infrastructure for pollution prevention.	Very Low- release would only occur in event of failure of both primary and secondary containment.	Low - medium (depending on quantity)	Low
Ground:						
Leaks and spills from oil delivery and storage to ground	Ground and groundwater	Direct contact	Pollution prevention is supported by the Terminal's policies and procedures and by the Terminal design, which incorporates infrastructure for pollution prevention. Oil storage and containment is subject to periodic inspection as part of the site	Low	Low- Medium contamination to land.	Low

Hazard	Receptor	Pathway	Risk Management	Probability of exposure	Consequence	What is the overall risk?
			management protocols and procedures. A spillage procedure is in place and staff are trained in these procedures to quickly clean-up spillages should they occur. Spill kits are available at strategic positions around site and allow for rapid clean-up of spillages should they occur.			
Other:						
Pests	Local residents (nearest receptors to the facility is approx. 950 m from permit boundary)	Land/air	The changes detailed in this variation are unlikely to cause any risk of pests at the facility. Should pests become an issue, a pest control company will be contracted to resolve the issues	Very Low	Very Low	Very Low
Litter and Waste	Adjacent and nearby industrial sites.	Windblown to air	Minimal waste generation is anticipated on site. The SCV/HPSO units are unlikely to have any significant effect on types of wastes or amounts of waste generated and stored. Good housekeeping and site management procedures ensure that any litter or accidental spillage of wastes will be cleaned up immediately. In the event of a complaint, SHLNG will follow a complaints procedure to record the complaint and take appropriate action or provide further monitoring as necessary	Very Low	Low	Very Low

Table 3-5: Visible Emissions

Hazard	Receptor	Pathway	Risk Management	Probability of exposure	Consequence	What is the overall risk?
Plume from emission stacks	Local residents (nearest receptors to the facility is approx. 950 m from permit boundary)	Visual	The permitted process is proven not to be a source of significant plumes from emission stacks. The SCV and associated HPSO pump proposed are the same model and capacity as the plant currently on site and will be supplied by the Original Equipment Manufacturer (OEM). The current plant in operation at the site for 15+ years has not recorded any issues relating to visible plumes. No further risk management is required.	Very Low	Very Low – Minor visual disturbance	Very Low

Table 3-6: Accident risk assessment and management plan

Hazard	Receptor	Pathway	Risk Management	Probability of exposure	Consequence	What is the overall risk?
Operator error	Air/Water/Land Local residents (nearest receptors to the facility is approx. 950 m from permit boundary)	Variable - dependent on nature of the error	Key plant will employ advanced computer control systems which maintain continuous operational oversight and control of operations. Automatic control system will continue to be in place to rectify any issues and/ or shutdown plant in the unlikely event of an emergency or process upset. Alarms will alert the operators to potential operational problems and where relevant will be triggered with sufficient safety margin to permit operator intervention. All operational staff are fully trained in the site operating procedures which include procedures to follow in the unlikely event of emergency and/ or abnormal process conditions. Training will continue to include raising awareness of key plant parameters and the potential implications of failure to control operations as designed and the associated potential impact on the safety, health and the environment. The site is an upper tier COMAH installation and as such has a number of inherent safety systems incorporated into the terminal design, with policies and procedures in place to minimise risks from operator error.	Low	Variable depending upon nature of incident	Very Low - provided operating procedures are followed
Fire/explosion or failure to contain firewater.	Local residents (nearest receptors to the facility is	Air/ Water (firefighting)	The new plant is not expected to increase fire risk and/ or explosion risks as it is specified 'like for like' to the currently installed plant.	Low	Medium - Deterioration in air quality.	Low (no change to significance of risk to the permitted scheme)

Hazard	Receptor	Pathway	Risk Management	Probability of exposure	Consequence	What is the overall risk?
	approx. 950 m from permit boundary)		Fire alarms, detection/suppression systems will be installed. Staff will be trained in emergency fire procedures and actions to take in the event of a fire at the site. Fixed automatic fire detection and firefighting systems are strategically located throughout the process with fire alarms, detection/ suppression systems installed. These systems will be expanded to include the proposed new SCV/ HPSO pump areas as required. Staff will continue to be trained in emergency fire procedures and actions to take in the unlikely event of a fire at the site. Pollution prevention infrastructure provided includes isolation valves on the site drainage system, which can allow firewater containment as required, to minimise any potential risks of pollution of controlled waters. SHLNG is an upper tier COMAH installation and on-site and off-site emergency plans are in place for such scenarios. Periodic training exercises will continue to take place, as required		Pollution of surface water and/or groundwater.	
Flooding	Surface Waters Ground Water Land	Water / Drainage System	The site is proven not to be at risk of significant flooding. Localised flooding will be avoided through incorporation of appropriate surfacing and site drainage system infrastructure.	Very Low.	Low - Pollution of surface water and/or groundwater.	Low

Hazard	Receptor	Pathway	Risk Management	Probability of exposure	Consequence	What is the overall risk?
			The proposed development area is currently provided by largely impermeable pavements served by sealed drainage systems. New surfaces will be consistent with the current Terminal design, with impermeable pavements and gravelled areas allowing for infiltration at least at the current rate. There will be some soft landscaping outside the development areas which will offer further infiltration capacity and reducing the runoff coefficient from localised precipitation events. Given the existing surfacing, there will not be any significant change to the run-off profile or existing attenuation systems associated with this permit variation application.			
Vandalism	Air/Land/Water	Variable - dependent on nature of the vandalism	As detailed in responses above. The site is an upper tier COMAH installation and part of UK national critical infrastructure. The site is surrounded by security fencing and access is strictly controlled by Teams of dedicated Security Staff who implement the Security policies and procedures. The site is staffed 24 hours a day, 7 days a week. CCTV surveillance systems are in in place, with feedback to the security/control rooms.	Very Low due to security measures in place	Variable depending upon nature of vandalism	Very Low due to the unlikelihood of any unauthorised access to the site.

4. EMISSIONS TO SURFACE WATER

4.1 Surface water runoff

4.1.1 There will be no changes to surface water runoff or emissions as a result of the changes in this variation.

4.1.2 Previously submitted risk assessments for surface water runoff for the facility remain valid.

4.2 Process Water Discharge

4.1.3 There will be no changes to process water emissions as a result of the changes in this variation.

4.1.4 Previously submitted risk assessments for process water emissions for the facility remain valid.

5. EMISSIONS TO AIR

5.1 Emissions release points

5.1.1 There shall be one additional point source emission to air from the new SCV to be installed at the site. As detailed in the supporting information document, although there shall be a new emissions point, overall, the emissions to air from the installation shall not change as a result of the variation as we will the limit the number of SCVs operating at any one time to the permitted 15 No..

5.1.2 We also take the opportunity to regularise, by inclusion in Table S3.1 of permit EPR/XP3538LD, additional Emission point ref. A146 - Portable air compressor - tie into the instrument air compressor/drier skid, as per our previous correspondence to NRW (Ref. SHLNG-TS-ENV-C-532 sent 1.9.2017). This has no potential impact on air quality.

5.1.3 Previously submitted risk assessments (July 2005) for the emissions to air for the facility remain valid.

6. CONCLUSIONS

6.1.1 The risk assessment presented above concludes that the hazards presented by the permit variation to include an additional SCV and HPSO are very low to low, given the good terminal design and management systems in place.

6.1.2 There is no overall change to the emissions to air or water from the installation and the previous air quality assessment for the installation (July 2005) remains valid. This concluded that impacts from the installation were unlikely to be significant, which continues to be the case looking forwards.

6.1.3 Monitoring data of emissions from the installation during operation have confirmed that emissions have been compliant with the permitted levels and are not having any significant environmental impacts. This excellent environmental performance to date will continue moving forwards.

SITE CONDITION REPORT

On Behalf of South Hook LNG Terminal Company Limited

2022-12-13

JFR2006

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Contact

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Appendix D
CORRESPONDANCE WITH REGULATOR

Our ref: JFR2006_South Hook LNG Terminal

20 Farringdon Street
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Date: 14 December 2022

Lee Mills
Senior Specialist Advisor
Natural Resources Wales
Plas Gwendraeth
Heol Parc Mawr
Cross Hands
Carmarthenshire
SA14 6RE

Dear Lee,

South Hook LNG Terminal, Application for Low-Risk Partial Surrender, EPR/XP3538LD

Further to our meeting of 13 December 2022, this letter covers main areas discussed relating to the proposed low risk application to surrender parts of the South Hook LNG Terminal permitted area. The current permitted area covers approximately 61 hectares. The proposed application seeks to reduce this to 39 hectares. The current permitted area can be found within Schedule 7 of the permit EPR/XP3538LD.

The areas identified within the proposed application are, and have always been non-operational, falling outside the site security fencing. Throughout the lifetime of the activities carried out by South Hook LNG Terminal Company Limited, these areas have been left undisturbed. This means that these areas have not been subject to any of the permitted activities, including the handling or storage of potentially polluting substances.

Horizontal Guidance Note 5 ("H5") states that:

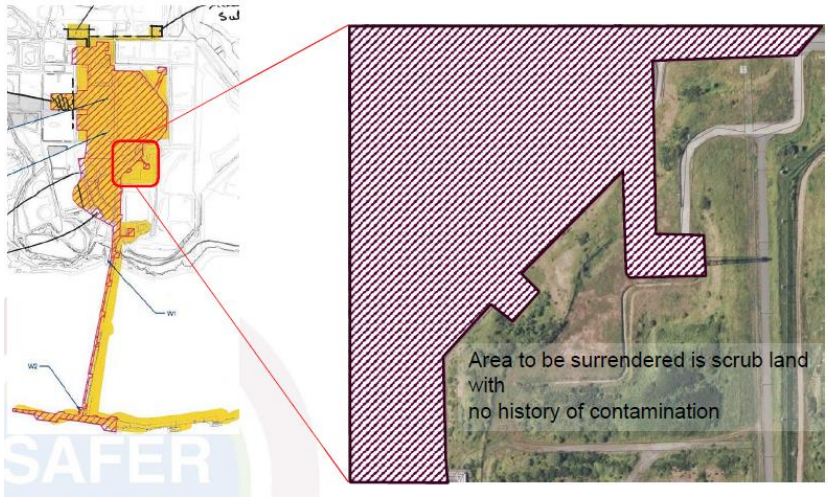
The surrender part of the SCR "…*must provide the evidence necessary to convince us your site does not pose a pollution risk and is in a satisfactory state*".

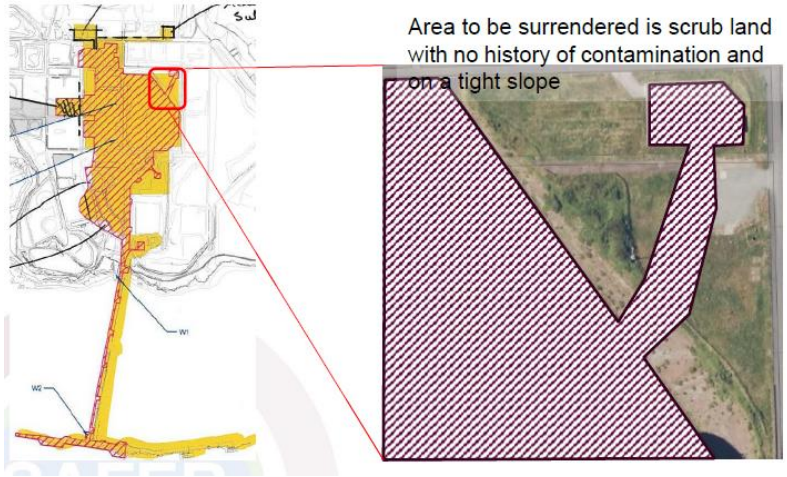
and

…where activities could in principle pollute land or groundwater but the operator can show through waste acceptance records (where applicable) and pollution control measures that the legal test set out above has been met. A report is required but not one involving intrusive monitoring data. All the non-radioactive substances facilities covered here may qualify, depending on circumstances.

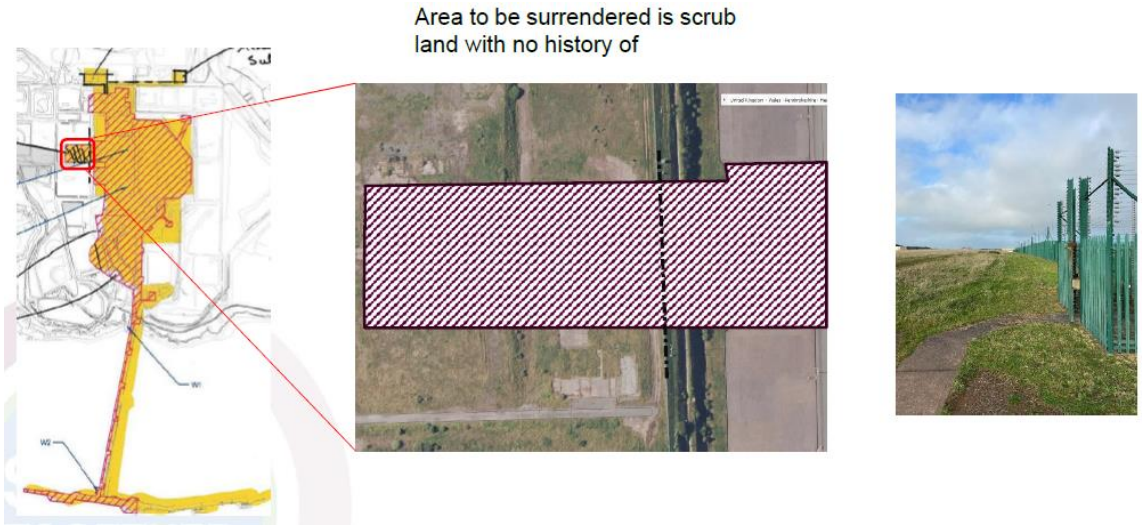
The current condition of the respective areas demonstrates that these areas have been undisturbed due to the thick covering of vegetation. Therefore, the proposed application and supporting SCR will demonstrate the low risk nature of the surrender.

Permitted areas have been identified for surrender and images provided below:


Area to be surrendered is scrub land with
no history of contamination


Area to be surrendered is scrub land with no history of contamination and on a tight slope


Area to be surrendered is open water with no direct attributed activities related to SHLNG operations



The drawings and images above clearly show that the respective areas have not been subject to any permitted activities or activities which could cause harm to the environment which meets the surrender test within Regulatory Guidance Note (RGN) 9, which states:

The regulator must accept an application to surrender an environmental permit in whole or part under regulation 25(2) if it is satisfied that the necessary measures have been taken –

(c) to avoid a pollution risk resulting from the operation of the regulated facility; and

(d) to return the site of the regulated facility to a satisfactory state, having regard to the state of the site before the facility was put into operation.

During the meeting we informed you that the permitted activities prescribed within the permit will not change as a result of the low risk partial surrender application. This means that the determination of the proposed application does not require technical assessment, which supports the low risk approach. The current OPRA profile for the permit will require amendment to reflect the reduced permitted area. This opportunity also allows for the correction of the location attribute which incorrectly documents human occupation within 50 m of the permitted installation.

The proposal to surrender areas of non-operational land is predicated on South Hook LNG Terminal Company Limited seeking to reduce their current annual subsistence fees. As you will appreciate, the subsistence fee needs to be appropriate and cover areas of operational activities and processes and not non-operational land.

Given the low risk nature of the proposed application, we are now seeking confirmation from you, that we have held discussions at a local team level. This evidence is required for the submission of the low risk permit application.

Yours sincerely,
for RPS Group Limited

Rayhela Ahmed-Monju
Principal Consultant
rayhela.ahmed@rpsgroup.com

cc: Eamon O'Loughlin, South Hook LNG Terminal Company Limited
Michael Launder, Natural Resources Wales

Rayhela Ahmed-Monju

From: Mills, Lee <lee.mills@cyfoethnaturiolcymru.gov.uk>
Sent: 14 December 2022 11:36
To: Rayhela Ahmed-Monju; Launder, Michael
Cc: Eamon O'Loughlin; Wayne Davies; Wallace, William
Subject: RE: South Hook LNG Terminal, Application for Low-Risk Partial Surrender, EPR/XP3538LD

Dear Rayhela,

Thank you for providing this supporting information in relation to your client's (South Hook LNG) intention to apply for a partial surrender in respect to EPR/XP358LD.

As discussed at the meeting held on 13th December 2022 we are unable to predetermine any aspects of the partial surrender application as our Installations Permitting Team will consider the application at the duly making stage.

William – As discussed today copying you in for information at this point as you have recently dealt with a variation for SHLNG and may be involved in this application. Please contact myself or Mike Launder if you should require any information in relation to discussions to date held with Rayhela and Wayne from RPS. I'll of course forward you Rayhela's supporting information so you have some background prior to submission.

Kind regards

Lee Mills
Uwch Gynghorydd Arbenigol / Senior Specialist Advisor
Polisi Ymbelydredd a Diwydiant / Radioactivity & Industry Policy
Cyfoeth Naturiol Cymru / Natural Resources Wales
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Plas Gwendraeth, Heol Parc Mawr, Cross Hands, Sir Gaerfyrddin, SA14 6RE / Plas Gwendraeth, Heol Parc Mawr, Cross Hands, Carmarthenshire, SA14 6RE

From: Rayhela Ahmed-Monju <Rayhela.Ahmed@rpsgroup.com>
Sent: 14 December 2022 10:41

To: Mills, Lee <lee.mills@cyfoethnaturiolcymru.gov.uk>; Launder, Michael <Michael.Launder@cyfoethnaturiolcymru.gov.uk>
Cc: Eamon O'Loughlin <EOLoughlin@SouthHookLNG.com>; Wayne Davies <DaviesW@rpsgroup.com>
Subject: South Hook LNG Terminal, Application for Low-Risk Partial Surrender, EPR/XP3538LD

Dear Lee and Michael

Further to our meeting yesterday afternoon, please find attached an outline of the low risk partial surrender application for South Hook LNG Terminal.

We would appreciate your acknowledgement of the proposed application in order to for us to submit the application.

Regards

Rayhela Ahmed (She/Her)
Principal Consultant
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APPLICATION FOR PARTIAL SURRENDER OF ENVIRONMENTAL PERMIT EPR/XP3538LD

On Behalf of South Hook LNG Terminal Company Limited

2022-11-23

JFR2006

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