

Natural Resources Wales permitting decisions

South Hook LNG Terminal Decision Document

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Permit Variation

The variation number is: EPR/XP3538LD/V004

The operator is: South Hook LNG Terminal Company LTD.

The Installation is located at: South Hook LNG Terminal, Dale Road, Herbrandston, Milford Haven, Pembrokeshire, Wales, SA73 3SU

We have decided to issue the variation for South Hook Liquefied Natural Gas (LNG) terminal operated by South Hook LNG Terminal Company LTD. We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

This is a variation primarily to add a sixteenth submerged combustion vaporiser (SCV) and high-pressure send out pump (HPSO). The new SCV is considered a new Medium Combustion Plant (MCP) as it will be put into operation after 20 December 2018 and is a combustion unit with a thermal input between 1 MW and 50 MW. Therefore, the new SCV is subject to the MCP Directive (MCPD).

Although this variation adds one additional SCV, the site will be limited to no more than 15 in operation at any one time, therefore there will be no changes in emissions to air from the installation due to this variation. The additional SCV will only become operational if another one fails and is considered a back-up unit.

There are no emissions considered with the addition of a new HPSO therefore no further assessment has been completed.

The Operator has also requested to increase throughput of the SCVs from current (32 MWth to 36.8 MWth). There will no change to the send-out capacity above the level currently permitted (812 GWh per day) or the thermal capacity at the site (600 MWth), this operational change will just enable that capacity to be met with fewer combustion units. The Operator has confirmed even at increased throughput each SCV will be able to comfortably meet the emission limit values (ELV) therefore we consider the initial emissions to air risk assessment presented in the permit application to remain

valid for this change in throughput, overall mass emissions are the same as currently permitted or lower as explained in detail below.

There are additional changes made to the permit as part of the consolidation as explained below:

- A new emission point to air is added to the permit for a portable air compressor, this has been in operation since 2017 and was agreed with regulatory compliance officers. The permit is updated to reflect the site operations.
- All references to EPR/XP3936NS for the South Hook CHP are removed from the permit. This installation was never operational, and the permit was subsequently surrendered in 2016.
- The monitoring standard for continuous monitoring of Oxides of Nitrogen from the existing SCVs has been updated to EN 15267-3 in line with current standards
- The limitation on the Operator to only continually monitor existing SCVs: A8 and A11 has been removed and replaced with the ability to monitor any SCV in Phase 1 (A1 – A8) and any SCV in Phase 2 (A11 – A17). This change enables the Operator to have operational flexibility as they look to upgrade the monitoring systems in the future, the Operator is still required to continually monitor two SCVs with one in each phase.

Purpose of this document

This decision document:

- explains how the application has been determined
- provides a record of the decision-making process
- shows how all relevant factors have been taken into account
- justifies the specific conditions in the permit other than those in our generic permit template.

Unless the decision document specifies otherwise we have accepted the applicant's proposals.

Key issues of the decision

Receipt of application

Confidential information

A claim for commercial or industrial confidentiality was made, however the applicant withdrew the claim for confidentiality on 15/02/2021.

Identifying confidential information

We have not identified information provided as part of the application that we consider to be confidential. The decision was taken in accordance with our guidance on commercial confidentiality.

Consultation

The consultation requirements were identified and implemented. There was no requirement to carry out a consultation for this minor technical variation application. The decision was taken in accordance with RGN 6 High Profile Sites, our Public Participation Statement and our Working Together Agreements.

The facility

The regulated facility is an installation which comprises the following activities listed in Part 2 of Schedule 1 to the Environmental Permitting Regulations, Schedule 25A covering the Medium Combustion Plant Directive and the following directly associated activities.

- Section 1.1 A(1) (a) : Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more
- Schedule 25A Medium Combustion Plant Directive – one new SCV (MCPD Identifier: 43-E6901 A-H / 44-E6901 A-G) is considered a new MCP as put into operation after 20 December 2018 and has a rated thermal input between 1 MW and 50 MW.

Directly associated activities:

- Receipt and storage of LNG

The installation historically had a second permit for a combined heat and power plant (EPR/XP3936NS), however this installation was never operational, and the permit was subsequently surrendered in 2016. Therefore, during the consolidation all references to this separate permit (EPR/XP3936NS) have been removed from the South Hook LNG Terminal permit.

Legislation

NRW is satisfied that this decision is compatible with its general purpose of pursuing the sustainable management of natural resources in relation to Wales and applying the principles of sustainable management of natural resources. All applicable European directives have been considered in the determination of the application.

The site

There are no changes to the site boundary as a result of this variation. There are two new emission points added to the permit as part of this variation:

- A18 – is a new emission point added to the permit for the new SCV
- A146 – is a new emission point added to the permit for the portable air compressor

Therefore, the site plan has been updated to include these changes to the emission points at the installation.

Environmental Risk Assessment

Air

New SCV

As a result of adding a new SCV which is considered a new MCP, there will be a new emission point to air added to the permit. The new SCV is like for like to those that are existing and emissions of concern remain the same from combustion of natural gas: oxides of nitrogen (NO_x) and carbon monoxide. As the new SCV is considered a new MCP, it will be subject to a NO_x emission limit value (ELV) of 100 mg/Nm³ which is slightly tighter than the ELV on the existing SCVs. The Operator has confirmed the new SCV is able to meet the tighter NO_x limit contained within the MCPD, previous monitoring data on the existing SCVs also further confirms all SCVs are well below the permitted ELVs, including the tighter MCPD ELV. All existing SCVs are considered existing MCPs and will not be permitted as MCPs until the relevant permitting date.

The site is currently permitted for 15 SCVs, the addition of this new SCV will give a total of 16 SCVs on the site. Even with an addition of 1 SCV the site will be limited to the operation of 15 SCVs at any one time, as per what is currently permitted, one will permanently remain as a backup unit giving flexibility. Therefore, there will no changes in emissions to air from the site as a result of this variation and we consider the original air emissions risk assessment submitted in the original application to remain valid.

Increase in throughput of SCVs

The Operator has requested to increase throughput of the SCVs from current (32 MWth to 36.8 MWth). There will no change to the send-out capacity above the level currently permitted (812 GWh per day) or the thermal capacity at the site (600 MWth), this operational change will just enable that capacity to be met with fewer combustion units. The Operator has confirmed even at increased throughput each SCV will be able to comfortably meet the emission limit values (ELV), to demonstrate this a SCV capacity test was carried out where NOx emissions were measured from an SCV at different increasing capacities, this data was then compared to the original air emissions risk assessment completed in the initial permit application. The data is presented below:

Maximum SCV Throughput	Number of SCVs operating at peak terminal send out	NOx production per SCV g/s	Total SCV NOx production (g/s)
100 %	14	0.46	6.5
110 %	13	0.50	6.5
115 %	12	0.53	6.4

The original detailed air dispersion modelling considered 15 SCVs operating simultaneously at 100 % throughput each with a NOx production per SCV as 1.03 g/s, this emission rate figure is much higher than what has been monitored within the SCV capacity test even when the SCV is running at 115 % throughput. Therefore, we consider the initial emissions to air risk assessment and detailed air dispersion modelling submitted in the permit application still presents a worst-case scenario and remains valid even with the proposed changes to throughput.

New HPSO

There are no emissions to air arising from the new HPSO therefore no further assessment has been completed.

Portable air compressor

Through the consolidation, a new emission point has been added to the permit (A146) for a portable air compressor. The emission point has been in operation since 2017 and its addition was agreed during that time with NRW through the regulatory compliance officer. The permit has been updated to reflect this agreement.

Emission limits

There will be no changes to emission limits for the existing SCVs at the installation. Emission limit values (ELV) for the new SCV will be set in accordance with the MCPD. The ELV for NO_x contained with MCPD is tighter (100 mg/Nm³) than what is currently on the permit for the existing SCVs (107 mg/Nm³) therefore the tighter limit will apply for the new SCV. The Operator has confirmed the new SCV can meet the NO_x limit contained with MCPD. In line with the requirements of the MCPD, an ELV for carbon monoxide will not be set but monitoring will be required, this is also in line with what is currently required for the existing SCVs.

Water

There are no changes to current permitted point source to emissions as part of this variation. The site will be limited to operate a maximum of 15 SCVs at any one time, therefore we consider the original environmental risk assessment submitted in the original application for water emissions to remain valid for this variation.

As part of the consolidation and removal of all references relating to permit number EPR/XP3936NS (South Hook CHP), table S3.2b has been removed from the permit. As per Note 2 under this table in the permit, the emission points and limits set in this table were only relevant from the implementation of the commissioning of the South Hook CHP (EPR/XP3936NS), this site was never operational and the permit has now been surrendered. Therefore, this table is now redundant and removed from the permit.

Monitoring

We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified. These monitoring requirements have been imposed in order to demonstrate compliance with the emissions limits in the permit. Monitoring requirements have been added to the permit for the new SCV (new MCP). The monitoring frequency and methods have been imposed as per the current monitoring requirements carried out on the other fifteen existing SCVs, as this is more frequent (quarterly) than what is required by the

monitoring frequencies specified within the MCPD (annually), the more stringent monitoring frequency is considered site-specific best available techniques (BAT). As per the MCPD, the first monitoring measurements for the new SCV is required within four months of permit issue date or date when the MCP is first put into operation whichever is later.

There has been changes to the continuous monitoring of the existing SCVs, this enables the Operator operational flexibility to monitor one SCV in Phase 1 and one SCV in Phase 2, they were previously limited to only continually monitor A8 and A11. The Operator is looking to upgrade the Continuous monitors therefore requires operational flexibility over which units they can monitor. This change was agreed with the regulatory compliance officer. All other monitoring requirements on point source emissions to air and point source emissions to water on the permit remain as is. There are no monitoring requirements added to the permit for the portable air compressor. As part of the consolidation and removal of all references relating to permit number EPR/XP3936NS (South Hook CHP), any monitoring associated to the South Hook CHP have been removed from the process monitoring requirements.

Reporting

We have specified the reporting requirements in Schedule 4 of the Permit to ensure data is reported to enable timely review by Natural Resources Wales to ensure compliance with permit conditions. Reporting of the monitoring of the new SCV has been added to current reporting requirements.

Operating techniques

The new SCV and HPSO will continue to be operated in the same way as the existing SCVs and HPSOs, therefore the existing operating techniques in place and agreed remain valid. Monitoring of the new SCV will be in line with techniques as specified in Technical Guidance Note M5 and will have MCERTS accreditation.

As a new Medium Combustion Plant, the site must adhere to the following operating techniques specific for MCP:

- Each MCP must be operated in accordance with the manufacturer's instruction 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.

These additional operating techniques have been incorporated into the permit through Table S1.2A.

Updating permit conditions during consolidation

The permit has been consolidated and issued in modern condition format. All relevant conditions from our MCP permit template have also been added to the permit. All references to the South Hook CHP permit (EPR/XP3936NS) have been removed from the permit as it was surrendered in 2016. The operator has agreed that the new conditions are acceptable.

Incorporating the application

We have specified that the applicant must operate the permit in accordance with descriptions in the application, including all additional information received as part of the determination process. These descriptions are specified in the Operating Techniques table in the permit.

Environment management system

The Operator has an Environment Management System (EMS) in place that is externally accredited to ISO14001. There is no change to the EMS as part of this variation. There is no known reason to consider that the operator will not have the management systems to enable it to comply with the permit conditions. The decision was taken in accordance with RGN 5 on Operator Competence.

OPRA

The OPRA score at permit issue is 170. The OPRA score has not changed as part of this variation. There is an additional fixed subsistence for the MCP (new SCV) component. More information on this can be found in our charging scheme on our website.