Natural Resources Wales permitting decisions

Variation of a Bespoke Permit

We have decided to issue the variation for Dragon LNG operated by Dragon LNG Limited.

The variation number is EPR/AP3136UA/V003.

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.

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.

Structure of this document

- Key issues
- Annex 1 the decision checklist

Key issues of the decision

Biodiversity, Heritage, Landscape and Nature Conservation

The following sites are within the relevant screening distances for an EPR installation with discharges to air.

European Sites within 10km of the centre of the site:

- Pembrokeshire Marine / Sir Benfro Forol (SAC)
- Limestone Coast of South West Wales / Arfordir Calchfaen de Orllewin Cymru (SAC)
- Pembrokeshire BAT Sites and Bosherston Lakes / Safleoedd Ystlum Sir Benfro a Llynnoedd Bosherston (SAC)
- Castlemartin Coast (SPA)

Sites of Special Scientific Interest within the 2km of the centre of the site

- Milford Haven Waterway SSSI

There are no National Nature Reserves, Local Nature Reserves or Local Wildlife Sites within 2km of the site centre. However there are four Ancient Woodlands within 2km of the site centre, the closest of which is located approximately 0.7km to the west.

The Dragon LNG installation already has an environmental permit. This particular variation application is for a new re-liquefaction plant which has no emission points to any media.

When the proposed re-liquefaction plant is operational, boil-off gas will no longer need to be combusted in the Co-gen plant. As such overall emissions to air of combustion gases from the installation are expected decrease slightly. The decrease in emissions is described as slight because the Co-gen plant stack is 92 metres high, so releases to air from this source are already well dispersed.

We have reviewed the Air Quality Impact Assessment submitted by the applicant. This review indicates that following decommissioning of the Co-Gen plant, there will be a small net reduction in Process Contributions (PCs) from the installation, with PCs and Predicted Environmental Concentrations (PECs) unlikely to result in an exceedance of any Critical Levels for the protection of vegetation and ecosystems or any Critical Loads for acidification or nutrient nitrogen deposition at sensitive receptors.

On this basis, we are satisfied that there will not be a likely significant effect (both alone and in combination) on a European Site as a result of this variation. We also consider that the proposed permission is not likely to damage any of the special interest features of Milford Haven Waterway SSSI. Finally, we are satisfied that significant pollution will not be caused at any of the Ancient Woodland sites as a result of this variation, for the reasons already described.

Environmental Risk

Operation of Re-liquefaction Plant

As described in the **Biodiversity, Heritage, Landscape and Nature Conservation** section above, there are no new emission points to any environmental media associated with the re-liquefaction plant. Also, when the proposed re-liquefaction plant is operational, emissions of combustion gases from the installation are expected to decrease slightly as boil-off gas will no longer need to be combusted in the Co-Gen plant.

We have reviewed the Air Quality Impact Assessment submitted by the applicant. This review indicates that following decommissioning of the Co-

Gen plant, there will be a small net reduction in Process Contributions (PCs) from the installation, with PCs and Predicted Environmental Concentrations (PECs) unlikely to result in an exceedance of any Air Quality Objectives (AQOs) or Environmental Assessment Levels (EALs) for the protection of human health at sensitive receptors.

As there are no new emission points associated with the re-liquefaction plant, emission limits and associated monitoring are not required. We are also satisfied that there will be no material change in waste production or any change in release of odorous substances at the installation as a result of this variation.

The applicant submitted a noise modelling report assessing the predicted impact of the re-liquefaction plant. The noise modelling report indicates that following completion of the new re-liquefaction plant and subsequent decommissioning of the Cogen plant, the impacts of noise as a result of PCs from the Submerged Combustion Vaporisers (SCV's) and associated plant will be less than the existing background sound level at two of the five nearest residential receptors. At the remaining three residential receptors, the noise modelling report indicates that the impacts of noise as a result of process contributions (PCs) from the SCV's and associated plant will be less than existing contributions from the Cogen Plant.

We have reviewed the applicant's noise modelling report and are satisfied that the maximum predicted rating levels are unlikely to result in an adverse impact at the selected sensitive receptors, when assessed against BS4142:2014. However it is recognised that the re-liquefaction plant has not yet been constructed and therefore some of the final plant specification could be subject to change. As such, we have set an improvement condition to ensure that the actual sound emitted by the re-liquefaction plant will not cause adverse impact at the five nearest sensitive receptors, when compared to the design predictions. See **Improvement Conditions** section in the Annex 1: Decision Checklist below.

As part of this variation, the operator has also applied for some changes to water discharges associated with the general operation of the installation and unconnected with the operation of the re-liquefaction plant. These changes are discussed below.

Proposed Discharge of Fire-Fighting Foam Effluent to the Haven

The operator applied to discharge approximately 50 litres per month of 3% Expandol solution into the Milford Haven Waterway. Expandol is a fire-fighting foam which is used on a monthly basis to test the installation's fire-fighting system as required by the COMAH Regulations.

The Milford Haven Waterway is both a SAC and SSSI and is therefore a protected site. As such, any additional discharge into the Waterway could potentially have a significant adverse effect on the SAC features and potentially damage the SSSI features. In addition, the safety data sheet from

the manufacturer's website states that the product should be disposed of via a biological waste water treatment plant and does not recommend discharge direct to water as a disposal option. The operator is currently containing the fire-fighting foam effluent in an impoundment basin, prior to it being tankered away for disposal off-site. We consider that this solution already represents Best Available Techniques (BAT) for the installation and any discharge directly into water would represent a move away from this best practice position. Therefore we have refused this aspect of the variation application, based on the above reasons.

Capture of Existing Emission Point for Rainwater Run-off

This variation adds a new emission point to water "W1", which captures an existing release of rainwater run-off from around the LNG storage tanks. Due to historical drainage re-routing around the tanks, this discharge point was not previously identified within the permit. The operator has proactively sampled the discharge on a monthly basis over a 6-month period to demonstrate that the water is uncontaminated. The monitoring parameters included: suspended solids, ammoniacal nitrogen and nitrates, BOD, pH, Oil and grease and various metals. In all cases, the results for ammoniacal nitrogen, cadmium, mercury, iron and oil and grease were below the limit of detection. Where the presence of the following parameters has been detected, we are satisfied that levels are low and in all cases below the relevant Environmental Quality Standard prior to discharge into the AGI pond: aluminium, chromium, copper, lead, nickel, zinc, nitrate. The drainage basin was viewed at a site visit on22nd October 2015 and we are satisfied that no substances other than rainwater can enter the area from the existing operation. Therefore any traces of these substances are likely to be from historic uses of the site. At the site visit, the AGI Pond that the discharge flows into was viewed and appeared clean and unpolluted. pH results show the discharge as being well within the 6 -9 range usually set for discharges to surface water. Biochemical Oxygen Demand (BOD) and suspended solids values were also very low, the highest over the 6-month period being 4.17mg/l (BOD) and 10.5mg/l (suspended solids).

We are therefore satisfied that this existing discharge of rainwater run-off from around the LNG storage tanks into the AGI pond can continue. Condition 6.3.1 has been amended to reflect the fact that there is an emission point to water from the installation. We have also added tables 6.3.1 and 6.3.2 to the permit, which identify the location of emission point W1 and require that only clean, uncontaminated rainwater run-off from around the LNG storage tanks is permitted to be discharged into the Milford Haven Waterway via the AGI Pond. We do not require monitoring and reporting of the discharge, because it is an existing release which was not previously captured in the permit, rather than a new source from the installation. We are also satisfied that there are no inputs into the rainwater discharge from the existing operations on site. Conditions 6.3.2 and 6.3.3 have been added as standard permit conditions which underpin tables 6.3.1 and 6.3.2.

Administrative Changes

Permit condition 2.10.5 has been deleted as part of this variation. This is because certain plant items referenced in the condition do not exist (e.g. the "Two auxiliary boilers" have never been installed). Furthermore, the operator has highlighted that some of the process monitoring requirements in the condition which reference the original permit application are now out of date. We are satisfied that process monitoring will be addressed by Large Combustion Plant monitoring requirements going forward, therefore permit condition 2.10.5 has been removed.

In addition, the reference to "Milford Haven West reservoir" in condition 7.1.2, has been amended to "Milford Haven reservoirs" to reflect the fact that emission points E2(A) and E2(B), listed in table 7.1.2, actually discharge to the east reservoir.

Annex 1: decision checklist

This document should be read in conjunction with the application and supporting information and permit / notice.

Aspect considered	Justification / Detail	Criteria met Yes
The facility		
The regulated facility	This variation authorises the operation of a re-liquefaction plant. The new re-liquefaction plant will re-liquefy "boil-off" gas which evaporates from the two existing LNG storage tanks at the installation. The re-liquefied gas will then be returned to the LNG storage tanks instead of being burned in the installation's Co-Gen plant. The boil-off gas / LNG condensate circuit and refrigerant circuits will operate on a closed cycle. As such, the new re-liquefaction plant has no emissions to any environmental media and is considered to be integral to the existing storage of LNG. Table 1.1.1 has therefore been amended to show the re-liquefaction plant forming part of the Storage of LNG activity. Together the storage of LNG and re-liquefaction plant are part of the stationary technical unit.	✓
European Directives		
Applicable directives	All applicable European directives have been considered in the determination of the application.	✓
The site		
Biodiversity, Heritage, Landscape and Nature Conservation	The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat . A full assessment of the application and its potential to affect the sites has been carried out as part of the permitting process. We consider that the application will not affect the features of the sites. We have not formally consulted on the application. The decision was taken in accordance with our guidance. See **Key Issues** section.	✓

Aspect considered	Justification / Detail	Criteria met Yes
Environmental Risk Assessment and operating techniques		
Environmental risk	We have reviewed the operator's assessment of the environmental risk from the facility. The operator's risk assessment is satisfactory. See **Key Issues** section.	✓
Operating techniques	We have reviewed the techniques used by the operator and compared these with the indicative BAT standards in EPR 1.01: "How to Comply with Your Environmental Permit: Additional Guidance for Combustion Activities". The proposed techniques are in line with indicative BAT for Energy Efficiency and Avoidance, Recovery and Disposal of Wastes contained in EPR1.01 and we consider them to represent appropriate techniques for the facility. We are satisfied that the operation of the re-liquefaction plant represents BAT for energy efficiency, as burning of boil-off gas within the Co-Gen Plant will be avoided. This in turn means that the Co-Gen Plant will no longer need to operate in non-CHP mode during times when boil off gas needs to be burned, but there is no requirement for process heating at the installation. The re-liquefaction of boil-off gas will enable evaporated natural gas to be re-introduced into the LNG storage tanks, so meets the BAT (Avoidance, Recovery and Disposal of Wastes) requirement to recycle materials back into the process whenever possible. The other benefits associated with this variation are: • combustion emissions such as carbon dioxide (CO_2), oxides of nitrogen (NO_x) and unburned hydrocarbons arising from the Co-Gen Plant will be eliminated when the plant is not operated; • saving in water resources and treatment costs when the Co-Gen Plant is not operated; and • The natural gas inventory in the LNG tanks will not diminish or deteriorate in specification.	✓

Aspect considered	Justification / Detail	Criteria met Yes
The permit conditions		
Pre-operational conditions	Based on the information in the application, we consider that we need to impose a pre-operational condition. Before the re-liquefaction plant can become fully operational, it will be necessary for it to be commissioned. Pre-operational condition 1 has been set to ensure that the risks to the environment continue to be minimised throughout the commissioning process. At least 2 months prior to the commencement of commissioning, pre-operational condition 1 requires the operator to submit a commissioning plan to Natural Resources Wales for approval. The commissioning plan will address the expected emissions to the environment associated with the different stages of commissioning and the duration and timelines for completion of each stage. In addition, the operator is required to describe the actions that will be taken to protect the environment and also to inform Natural Resources Wales in the event of actual emissions exceeding expected emissions. The operator will be required to carry out commissioning in line with the commissioning plan, once it is approved by Natural Resources Wales.	✓
Improvement conditions	Based on the information in the application, we consider that we need to impose an improvement condition. Improvement Condition 9.7 requires the operator to complete noise monitoring at the nearest five local receptors when the re-liquefaction plant is operational. The noise monitoring shall be used to assess the following scenarios: • Re-liquefaction plant and Co-gen plant operating in tandem; and • Re-liquefaction plant operating without the Co-gen plant operating. The purpose of this improvement condition is to verify the re-liquefaction plant specifications and predictions made in the Xodus Report L-300017-S05-TECH-002 “Update of Noise Model for proposed new re-liquefaction plant”, when the re-liquefaction plant is operating. This will give a comparison of the actual operational noise levels against predicted performance. If rating levels associated with the re-liquefaction plant are detected which are likely to cause adverse impact at sensitive receptors, the operator is required to include an assessment of the most	✓

Aspect considered	Justification / Detail	Criteria met Yes
	suitable abatement techniques, including an estimate of the cost and the proposed timetable for their installation. Improvement condition 9.7 is due to be submitted within 12 months of the completion of commissioning of the re-liquefaction plant.	
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.	✓
Monitoring	Table 7.1.2 of the permit has been updated to reflect the operator's request to change to the way in which samples from emission points E2(A), E2(B) and E3 are collected. There is no change to the composition of the releases from these emission points as a result of this variation. The release from emission point E2(A) consists of purge water from the boiler plant and gas turbine compressor blade wash water, whilst the release from emission point E2(B) comprises effluent water from the water treatment plant and purge water from the cooling water system. The release from emission point E3 is comprised of rainwater, SCV overflow and process water. All three releases represent transfers to reservoirs / effluent treatment plant controlled by SEM Logistics Milford Haven Ltd. The original requirement was for the operator to sample the releases from all three emission points "once mid-way through any particular transfer". However we are satisfied that the sampling frequency can be changed to once per week for all three emission points. For emission points E2(A) and E2(B) this is acceptable because the destination for the releases is the SEM Logistics Effluent Treatment Plant, rather than a direct release into the environment. For emission point E3, we are satisfied that the release is intermittent and constitutes a relatively minor release.	✓
Reporting	Table 7.1.2 of the permit has been updated to reflect the operator's request to change the way that sampling results are reported for all emission points and parameters within the table.	✓

Aspect considered	Justification / Detail	Criteria met
		Yes
	The original requirement was for the operator to report the results as a “flow weighted average of all transfers in any given month”. However, the operator has explained that a composite flow check is not practicable for any of the emission points in the table E2(A), E2(B) and E3. On this basis, we have changed the reporting requirement for all emission points and parameters to an “average of all weekly sampling results in any given calendar month”.	
OPRA		
OPRA Score	There is no change to the operator’s OPRA score of 195 as a result of this variation.	✓