

**Natural Resources Wales permitting decisions**

# Dragon LNG Limited (Dragon LNG) Decision Document

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## Variation

**The variation number is:** **EPR/AP3136UA/V004**  
**The applicant /operator is:** **Dragon LNG Limited**  
**The Installation is located at:** **Dragon LNG ,Waterson ,Milford Haven,  
Pembrokeshire, SA73 1DR**

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

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

The main purpose of this variation to the facility Environmental Permit is to make amendments to the Section 1.1 (A)(1)(a) combustion activity. The combustion plant known both as the Cogen Plant and LCP90 (and associated discharge points) is removed from the permit, and the remaining combustion plant, the Submerged Combustion Vaporisers (SCVs) are permitted to operate with a revised operational configuration.

The Cogen Plant activity is no longer required to be undertaken and the infrastructure has been removed. Accordingly, associated air emission point, A1, has been removed from the permit, as well as any references to the Large Combustion Plant (LCP) requirements of the Industrial Emissions Directive (Chapter 3), as the facility is no longer an LCP installation.

A further operational change brought about by the Cogen plant decommissioning and land use changes is associated with water discharges. The variation has removed emission points which are no longer in use, and implements appropriate sampling requirements on the remaining consented discharges (W1, E2(B) and E3).

Dragon is also preparing an upgrade of existing surface water drainage system in Meadow Slope area leading down to the jetty, where a part-replacement and upgrade is proposed. A storm water attenuation area will be constructed, with replacement of the existing drainage line with perforated French drain construction, together with the installation concrete catchpits and clean stone drainage media. This will serve to better

control rainwater flow from the slope area but will not change the discharge point and no variation to the Permit is required in this regard. It is however acknowledged with our decision document.

### **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

The application was received at Natural Resources Wales (NRW) on 23/09/2021, a not duly made letter was sent on 04/03/2022 requesting input files for the air dispersion modelling, amended site maps, additional payment, additional emission parameters and clarification about what activities were to be removed from their permit . The application was duly made on 04/11/2022. This means we considered it was in the correct form and contained sufficient information for us to begin our determination, but not that it necessarily contained all the information we would need to complete that determination.

### 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

The operator has provided two plans which we consider is satisfactory, showing the extent of the site of the facility and the emission points, respectively.

A plan is included in the permit and the operator is required to carry on the permitted activities within the site boundary.

This permit controls the operation of a combustion plant. The relevant listed activity is Section 1.1 A(1)(a): Burning any fuel in an appliance with a rated thermal input of 50 or more megawatts.

The main purpose of activity at the installation is to offload ships of Liquefied Natural Gas (LNG), store the LNG and finally convert to gaseous form for transfer by pipeline to various parts of the UK.

Further detail of the site operations is given in the permit Introductory Note.

There are 6 Submerged Combustion Vaporisers (SCVs) at the site, these are used under various load and throughput depending on the demand. The SCVs are thermally efficient gas combustion units used to heat water for indirect re-gasification of the LNG. The 6 SCVs use natural gas as fuel.

A proportion of the LNG, after vaporisation, is used as fuel for the submerged combustion vaporisers. The emissions to air from the submerged combustion vaporisers discharge via 6 dedicated release point (one for each SCV).

The main releases from the process are releases to air of oxides of nitrogen. The release points are shown in Table S4.1 of this permit. There is a small release of relatively clean water from the site into the adjacent effluent treatment plant operated by SemLogistics Limited (Permit BK1341). The effluent release from the site into SemLogistics Limited's effluent treatment plant is monitored in line with Table S4.2 of the permit.

The process operated by Dragon LNG falls under Section 1.1, Part A(1), paragraph (a) of Schedule 1 of the EP Regulations. Also, the LNG storage is a directly associated activity to the combustion activities on site.

As a result of this variation, all permit references to the Cogen/LCP90 combustion activity are removed as the process is no longer used. The SCVs are the only combustion activity on site, and as such the site is no longer subject to the Large Combustion Plant Directive (LCPD).

## **Environmental Risk Assessment**

### **Surrender of Cogen Activity**

The operator has applied to surrender the cogen plant / LCP 90 activity which was part of the Section A(1)(a) combustion activity. There is no change in the permit boundary and no land is surrendered by cessation of the activity, so no site condition report is

provided nor assessed. This former activity and any associated risk will need to be considered at eventual permit surrender.

The cogen combustion plant will no longer operate and will be removed. This reduces the amount of activity on site, with a resultant decrease in overall environmental risk. The following key changes to the permit arise from the surrender for the cogen activity:

- Table S1.1 is amended to remove the cogen plant as a listed permitted activity
- Air emission point A1 is removed as it is no longer operational
- Water emission point E2A is removed as it relates to the surrendered activity
- All references to LCP / LCPD and associated permit conditions are removed, as the site is no longer a large combustion plant, as the Cogen was the LCP unit.
- A number of directly associated activities have been removed from the permit as a result of the decommissioning of the Cogen plant, this included the Mechanical draught air cooling tower system (formerly AR3) which we identified was no longer required during determination.

## Air

This section of the decision document deals primarily with the dispersion modelling of emissions to air from the stack and its impact on local air quality.

The Applicant has assessed the Installation's potential emissions to air against the relevant air quality standards, and the potential impact upon human health. These assessments predict the potential effects on local air quality from the Installation's stack emission.

The air impact assessments, and the dispersion modelling has been based on the Installation operating continuously at the relevant long-term or short-term emission limit values, i.e. the maximum permitted emission rate.

We are in agreement with this approach. The assumptions underpinning the model have been checked and are reasonably precautionary.

The assessment adopted a conservative approach in a number of ways, notably the assumed continuous periods of operation which will not be the case (as operational hours will depend on demand), and the maximum potential impacts are reported.

An air dispersion modelling assessment was submitted as part of the application to vary the permit. The assessment considered emissions of oxides of nitrogen (NO<sub>x</sub>) and carbon monoxide (CO) from the six Submerged Combustion Vaporisers (SCVs), under different operational scenarios.

The applicant has modelled two scenarios for comparison in their dispersion model. First, the “base case” impact of operating 6 SCVs as currently authorised, at a rate of 150 tonnes/hr gas vaporisation. Second, the proposed configuration with 5 SCVs operating at a rate of up to 169 tonnes per hour. The applicant also noted that in addition to changes to air emissions impact, there was an increase in energy efficiency associated with the proposed new 5-SCV configuration. Compared to previous impact modelling for the site, impacts are in any case reduced as the Cogen plant is no longer present as an emission source. All modelled values given below, with regards to air quality reflect the configuration with 5 SCVS operating at a rate of up to 169 tonnes per hour.

#### Potential impact compared with Environmental Standards for the protection of Human Health

The predicted pollutant receptor concentrations of NO<sub>2</sub> and CO, when added to the local background value are below the respective air quality Objectives for the protection of human health over short term and annual average periods for both operational configurations.

The NO<sub>2</sub> impact for the proposed new configuration was slightly lower than the base case operation which was already authorised, constituting a small environmental improvement. There was a slight increase in CO mass emissions, but this is considered of low impact compared to the benefit of the NO<sub>2</sub> reduction.

The below Process Contributions are taken from the human receptors with the highest levels of the relevant pollutant.

The Process Contribution (PC) for NO<sub>x</sub> was 0.32 µg/m<sup>3</sup> as an annual average, which is 0.8% of the environmental standard (ES) of 40 µg/m<sup>3</sup>. For the short-term NO<sub>x</sub> ES the applicant PC was 4.3 µg/m<sup>3</sup>, 2.2% of the ES of 200 µg/m<sup>3</sup>. These screen out as insignificant as they are below the long term threshold of 1% and short term threshold of 10% under which we consider impacts to be insignificant.

The PC for CO was 0.02 mg/m<sup>3</sup> as an 8 hour mean result, which is 0.18% of the ES of 10 mg/m<sup>3</sup>. This screens out as insignificant as it is below the 1% under which we consider impacts to be insignificant.

### Potential impact compared with Environmental Standards for ecological receptors

The below Process Contributions are taken from the ecological receptors with the highest percentage levels of the relevant pollutant with respect to the critical load.

The Critical Level assessment indicated that pollutant emissions from the varied SCV operations at the Dragon facility would be insignificant. Within the designated ecological sites, modelled Process Contribution (PC) values are less than 1% of the long-term environmental standard, and 10% of the short-term environmental standard. As noted above, The NO<sub>2</sub> impact for the proposed new configuration was slightly lower than the base case operation which was already authorised, constituting a small environmental improvement.

The maximum PC for NO<sub>x</sub> at any designated site (SSSI, SAC and SPA) was 0.25 µg/m<sup>3</sup> as an annual average, which is 0.8% of the ES of the critical load (CL). For the short-term NO<sub>x</sub> ES the applicant maximum PC was 4.13 µg/m<sup>3</sup>, 5.5% of the CL. These screen out as insignificant as they are below the long term threshold of 1% and short term threshold of 10% under which we consider impacts to be insignificant.

In respect of CLs, the maximum predicted Nutrient Nitrogen and acid deposition rates are above 1% of the relevant CL rates at the Milford Haven Waterway SSSI, when the most stringent CLs values within the allocated range are applied. When the least

stringent CLs values within the range are applied, the maximum deposition rates are below 1% of the relevant Critical Loads.

At the most stringent CL rates the PC for NN was 0.0497 kg N/ha/yr, which is 1% of the CL, the PC is <1% at the least stringent CL. NRW consider this as insignificant as this is also an improvement on the current modelled emissions which already contribute to the background levels of NN.

At the most stringent CL rates the PC for acid deposition was 0.0035 (kg eq/ha/yr)N/ha/yr, which is 2.5% of the CL, the PC is <1% at the least stringent CL. NRW consider this as insignificant as this is also an improvement on the current modelled emissions which already contribute to the background levels of acid deposition.

As the NO<sub>x</sub> emission for the proposed new configuration was lower than the base case operation as described above, predicted nitrogen and acid deposition values were predicted to be marginally higher with six SCVs running at the current throughput of 150 tonnes per hour, compared to a varied operational scenario in which five SCVs would operate at the higher throughput of 169 tonnes per hour. Therefore the proposed variation in SCV operations, will give rise to slightly reduced overall mass emissions to air and lower off site impacts, constituting a small environmental improvement.

## Conclusion

The air emissions impact of the proposed variation are considered acceptable. The result of changing the SCV configuration as described actually results in a small reduction in NO<sub>2</sub> impact, the key pollutant of concern, which is an environmental improvement. In any case, either configuration of the SCVs is considered unlikely to cause significant pollution, as impacts are either insignificant (<1% of long term or <10% of short term environmental standards) or are unlikely to breach environmental standards (PEC <100% of environmental standard).

In addition releases associated with operation of the former Cogen LCPD plant are no longer authorised, meaning that the overall impact of the installation will be

significantly reduced. Overall, in consideration of local air quality at human and ecological receptor locations in proximity to the Dragon terminal, the impact of emissions to air from the varied operation will not cause significant pollution and in fact is reduced compared with the “base case” of operation of 6 SCVs at a lower load, rather than 5 SCVs at a higher load..

### **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 .

#### European Protected Sites

An assessment of the application and its potential to affect the sites been carried out as part of the permitting process. We consider that the application will not affect the features of the sites.

The applicant has submitted air dispersion modelling that shows that the variation will not increase pollution to air, and in fact there is a small reduction in impacts of NO<sub>x</sub> and acid/nitrogen deposition as described above. At all Natura 2000 sites the emission contribution is estimated to be the same or less of current critical loads for all pollutants therefore, this variation will serve as an improvement to the current air emissions from the site.

A habitats risk assessment concluded that there would be no likely significant effect on any Special Area of Conservation, Special Protection area or Ramsar site as a result of the changes within this installation variation. Full details of the assessment can be found in the Habitats Regulation Assessment (“Form 1”) which can be found on the public register.

#### SSSI's

An assessment of the application and its potential to affect the sites been carried out as part of the permitting process. We consider that the application will not affect the features of the sites.

The applicant has submitted air dispersion modelling that shows that the variation will not increase pollution to air, and in fact there is a small reduction in impacts of NO<sub>x</sub> and acid/nitrogen deposition as described above. At all SSSI sites the emission contribution is estimated to be the same or less of current critical loads for all pollutants therefore, this variation will serve as an improvement to the current air emissions from the site.

An appendix 4 assessment concluded that any emissions resulting from this variation are not likely to damage any of the flora, fauna features which are of special interest. Full details of the assessment can be found in the Appendix 4 form which can be found on the public register.

### Local Wildlife Sites

There are 17 ancient woodland within the relevant screening distance.

The applicant has submitted air dispersion modelling that shows that the variation will not increase pollution to air, and in fact there is a small reduction in impacts of NO<sub>x</sub> and acid/nitrogen deposition as described above. This variation will serve as an improvement to the current air emissions from the site.

### Emission limits

No emission limits have been altered as a result of this variation application. The activity limits in Table S1.1 of the permit have been adjusted to make it clear that either maximum of 5 SCVs at up to 169 tonnes per hour, or up to 6 SCVs at up to 150 tonnes per hour can be operated, to ensure that the maximum site operation and impact does not exceed that described and modelled in the application.

### Water

A further operational change brought about by the Cogen plant decommissioning and land use changes is associated with water discharges. V004 of the permit included three water discharge points (W1, E2 (comprising of E2(A) and E2(B)) and E3, which discharge clean run off to the Milford Haven; release purge water from the boiler water

treatment plant, effluent water from the water treatment plant and purge water from cooling water system; and release overflow from firewater reservoir. The 'North Pit' is now closed, covered over, and there is no water discharge, so E2(A) is removed from the permit. The 'South Pit' (E2(B)) receives only rainwater runoff from the former steam turbine hall (which is now used only for storage) and hardstanding areas and whilst the discharge continues to function, the flow is now low to negligible in the continuing consented discharge. Emission points E3 and W1 will be retained within the permit.

### **Emission limits**

No emission limits have been altered as a result of this variation application.

### **Odour**

There will be no change in release of any odorous substance associated with this variation.

### **Noise**

The removal of the Cogen and associated plant has removed a number of operational noise sources from the facility. The increase in throughput of the SCVs will not give rise to any significant change in noise emission, and the noise environment at the most proximate residential and ecological receptors will not change.

### **Fugitive emissions**

There will be no change in release of any fugitive emissions associated with this variation.

### **Monitoring**

As a result of operational changes (see water section, above), alterations have been made to the monitoring with regards to "Point source emissions to sewer, effluent treatment plant or other transfers off-site" (table S3.3). There is a revised sampling regime for the remaining discharge point (E2). The firewater overflow (E3) continues to be utilised but a revised sampling regime has been adopted.

### **Reporting**

New reporting forms have been issued reflecting the changes to permit, emission points, and monitoring as described in this DD and the permit.

### Operating techniques

The operating techniques in table S1.2 have not changed as a result of this variation.

## **The permit conditions**

### **Updating permit conditions during consolidation**

We have updated previous permit conditions to those in the new generic permit template as part of permit consolidation. The new conditions have the same meaning as those in the previous permit(s).

The permit conditions and schedules have been updated appropriately as a result of the removal of the co-gen plant.

The operator has agreed that the new conditions are acceptable.

### **Use of conditions other than those from the template**

Although the permit contains conditions other than those from the template, these have not changed as a result of this application and relate to the direct discharge of effluent to another permitted facility.

### **Raw materials**

LNG storage capacity and overall throughput is unchanged by the variation and therefore there will be no significant change to the usage of raw materials.

### **Pre-operational conditions**

The Pre-operational measure reference 1 has been marked as complete in table S1.4 because the re-liquification plant is now fully operational.

### **Improvement conditions**

Improvement conditions 9.7, 9.8 and 9.9 have now been completed and table S1.3 has been updated accordingly.

## OPRA

The OPRA score at permit issue is 113. The previous OPRA score was 195, the reduction is as a result of the removal of the cogeneration plant. This has been updated with approval of the site officer.