

## Permitting Decisions- Bespoke Permit

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We have decided to grant the permit for Net Zero Teesside High Pressure Compressor Station operated by Net Zero North Sea Storage Limited.

The permit number is EPR/FP3143QN.

The application is for high pressure compressor which is a directly associated activity (DAA) to the Net Zero Teesside Power Station and Carbon Capture Plant which permitted under the following Environmental Permitting Regulations (EPR) Schedule 1- Part 2 Activities:

- Section 1.1 Part A(1)(a) Burning of fuel in an appliance with a rated thermal input of 50 or more MW; and
- Section 6.10 Part A(1): Capture of carbon dioxide streams from an installation for the purposes of geological storage

The DAA comprises a High-Pressure (HP) Compression train (booster station), metering system and the connection to a carbon dioxide (CO<sub>2</sub>) export pipeline. The HP compressors consist of centrifugal compressors which are used to pressurise the CO<sub>2</sub> from the Power Station and Carbon Capture Plant prior to exporting it to an offshore storage facility. The site will also accept CO<sub>2</sub> from other sources on the low-pressure CO<sub>2</sub> gathering network. The compressors will have electrically driven motors and will require 15MWe of power to compress the CO<sub>2</sub> produced by the Power Station and Carbon Capture Plant.

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 provides a record of the decision-making process. It:

- summarises the decision making process in the decision considerations section to show how the main relevant factors have been taken into account
- highlights key issues in the determination
- shows how we have considered the consultation responses

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

Read the permitting decisions in conjunction with the environmental permit.

## **Key issues of the decision**

### Impact of abnormal venting of carbon dioxide (CO<sub>2</sub>)

The release of highly concentrated CO<sub>2</sub> under pressure from the installation has the potential to cause harm to human health. It is recognised that for installations of the type proposed that venting to atmosphere of concentrated CO<sub>2</sub> may be required during operation of the installation. For this reason the Applicant was required to provide an assessment of the risk of the vented concentrated CO<sub>2</sub> causing harm to health at nearby sensitive receptors. The Applicant provided an assessment which presented a number of operational scenarios under which CO<sub>2</sub> may be vented to atmosphere and they have used air dispersion modelling (ADMS) to predict impacts on nearby receptors. The impacts have been compared to exposure assessment criteria detailed in the CO<sub>2</sub> incident management document (Compendium of Chemical Hazards: Carbon Dioxide. Public Health England (PHE) publications gateway number: 2014790. PHE, 2015) from the former Public Health England (PHE), now UK Health Security Agency (UKHSA), which provides incident management guidelines for assessing and managing the potential effects from exposure to CO<sub>2</sub>.

We have audited the Applicants assessment and are satisfied that based on the information provided the concentrations of CO<sub>2</sub> are likely to be below the Applicant's proposed lowest assessment criteria at sensitive human receptor locations. Therefore we are satisfied that there is no significant risk to human health.

A pre-operational condition (PO3) has been included in the permit requiring the Operator to provide an updated assessment for approval following completion of the final design of the proposed installation. Also included in this condition is a requirement for the Operator to submit to the Environment Agency for approval a management plan detailing operating techniques to minimise potential CO<sub>2</sub> phase changes, solid effects and dense gas behaviour when venting CO<sub>2</sub> atmosphere. This is included because the Applicant's assessment assumes that CO<sub>2</sub> releases are (fully expanded) gas with no phase change, we therefore require the Operator to have plans in place to minimise the CO<sub>2</sub> phase changes, dense gas behaviour or incidents that could occur during the proposed venting operation.

Note that nitrogen associated with site maintenance (purging prior to the introduction of CO<sub>2</sub>) will also be vented to atmosphere. We are satisfied that there is no risk to the environment or human health at nearby receptors from these releases.

## Noise and vibration

Based upon the information in the Application we are satisfied that the appropriate measures will be in place to prevent or where that is not practicable to minimise noise and vibration and to prevent pollution from noise and vibration outside the site.

The Applicant has stated that noise mitigation will be included through the choice of plant location and design. This may include appropriate use of cladding and shielding where appropriate and where practical siting equipment away from site boundaries and receptors.

We have assessed the impact from the installation as a whole. i.e. both the HP Compressor and the Power Station and Carbon Capture Plant. The permit Application contained a noise impact assessment which identified local noise-sensitive receptors (NSRs), potential sources of noise at the proposed installation and noise attenuation measures. Measurements were taken of the prevailing ambient noise levels to produce a baseline noise survey and an assessment was carried out in accordance with BS4142:2014 to compare the predicted plant rating noise levels with the established background levels.

The Applicant's assessment concluded that for operational noise the effects at all NSRs are expected to be minor adverse or less, so therefore unlikely to be significant at any NSR. However, it is acknowledged that the Applicant's assessment is not based on the final design of the installation, so for this reason we have set a pre-operational condition (PO4) in the permit requiring the Operator to submit to us for approval a new Noise Impact Assessment based on the final design of the installation. At this point we can review the noise impacts from Operator's final plant design and we will not approve the proposals unless we are satisfied that noise impacts will not be significant.

## Emissions to water

Emissions to water are limited to uncontaminated surface water runoff which will be discharged to the Tees Bay via emission point W1.

## **Decision considerations**

### **Confidential information**

A claim for commercial or industrial confidentiality has not been made.

The decision was taken in accordance with our guidance on confidentiality.

## 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 confidentiality.

## Consultation

The consultation requirements were identified in accordance with the Environmental Permitting (England and Wales) Regulations (2016) and our public participation statement.

The application was publicised on the GOV.UK website.

The application was advertised in The Gazette on 02/09/2022.

We consulted the following organisations:

- UK Health Security Agency
- The Director of Public Health
- The Health and Safety Executive
- Northumbria Water Limited
- National Grid
- Redcar and Cleveland Council – Planning and Environmental Dept

The comments and our responses are summarised in the [consultation responses](#) section.

## Operator

We are satisfied that the Applicant (now the Operator) is the person who will have control over the operation of the facility after the grant of the permit. The decision was taken in accordance with our guidance on legal operator for environmental permits.

## The regulated facility

We considered the extent and nature of the facility at the site in accordance with RGN2 'Understanding the meaning of regulated facility', Appendix 2 of RGN2 'Defining the scope of the installation' and Appendix 1 of RGN 2 'Interpretation of Schedule 1'.

The extent of the facility is defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit.

This permit applies to only one part of the installation, which in this case is the HP compressor. The names and permit numbers of the operators of other parts of the installation are detailed in the permit's introductory note.

## **The site**

The operator has provided a plan which we consider to be satisfactory.

This shows the extent of the site of the facility.

The plans show the location of the part of the installation to which this permit applies on that site.

The plan is included in the permit.

## **Site condition report**

The operator has provided a description of the condition of the site, which we consider is not satisfactory. The decision was taken in accordance with our guidance on site condition reports. The Applicant has not submitted a baseline report but has committed to carry out a survey prior to construction of the installation. We have therefore set a pre-operational conditions (PO5 – PO7) requiring the Operator to provide information for approval on the site condition in line with Environment Agency (including a baseline report) prior to the commencement of operations.

The baseline report is an important reference document in the assessment of contamination that might arise during the operational lifetime of the Installation and at cessation of activities at the Installation

## **Nature conservation, landscape, heritage and protected species and habitat designations**

We have checked the location of the application to assess if it is within the screening distances we consider relevant for impacts on nature conservation, landscape, heritage and protected species and habitat designations. The application is within our screening distances for these designations.

We have assessed the application and its potential to affect sites of nature conservation, landscape, heritage and protected species and habitat designations identified in the nature conservation screening report as part of the permitting process.

The following Habitat (i.e. Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar) sites are located within 15km of the Installation.

- Teesmouth and Cleveland Coast SPA and Ramsar
- North York Moors SPA and SAC
- Northumbria Coast SPA and Ramsar
- Durham Coast SAC

The following sites of special scientific interest (SSSI) are located within 2km of the installation:

- Teesmouth and Cleveland SSSI
- North York Moors SSSI
- Durham Coast SSSI
- Lovell Hill Pools SSSI
- Saltburn Gill SSSI

The following non-statutory local wildlife sites (LWS) are located within 2 km of the Installation:

- Coatham Marsh LWS
- Eston Pumping Station LWS

We have assessed the impact from the installation as a whole, so both the HP Compressor and the Power Station and Carbon Capture Plant. The assessment is recorded in the decision document that accompanies permit EPR/PP3501LR. In summary the conclusion from the assessment was that the installation as a whole would have no significant affect on any site of nature conservation or habitats identified.

We have consulted Natural England on our on our Habitats Regulation assessments, and taken their comments into account in the permitting decision.

## **Environmental risk**

We have reviewed the operator's assessment of the environmental risk from the facility.

The operator's risk assessment is satisfactory.

## **Operating techniques**

The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit.

## **Pre-operational conditions**

Based on the information in the application, we consider that we need to include pre-operational conditions.

We have included pre-operational conditions requiring the Operator to:

- PO1 - provide a summary of the EMS they have proposed in the Application.
- PO2 – provide a commissioning plan.
- PO3 – Updated CO<sub>2</sub> venting assessment – see ‘Key Issues’ section for further details.
- PO4 – Updated Noise Impact Assessment - see ‘Key Issues’ section for further details.
- PO5 – PO7 – Provide a report on baseline conditions of soil and groundwater at the installation.

## **Improvement programme**

Based on the information on the application, we consider that we need to include an improvement programme.

We have included an improvement programme to:

- IC1 – Provide a report on commissioning, including a review of compliance against permit conditions.

## **Emission Limits**

We have decided that emission limits are not required in the permit.

## **Monitoring**

We have decided that process monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified in Table S3.3 of the permit.

## **Reporting**

We have specified reporting in the permit.

We made these decisions in accordance with reference the relevant technical guidance.

## **Management System**

We are not aware of any reason to consider that the operator will not have the management system to enable them to comply with the permit conditions.

The decision was taken in accordance with the guidance on operator competence and how to develop a management system for environmental permits.

## **Growth duty**

We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit.

Paragraph 1.3 of the guidance says:

“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”

We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.

We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.

## **Consultation Responses**

The following summarises the responses to consultation with other organisations, our notice on GOV.UK for the public, newspaper advertising and the way in which we have considered these in the determination process.



## **Responses from organisations listed in the consultation section:**

Response received from UK Health Security Agency (UKHSA)

### **Brief summary of issues raised:**

All the issues raised by the UKHSA related to the operation of the power plant and carbon capture plant and where not directly relevant to the operation of the High-pressure compressor. Refer to the decision document that accompanies permit EPR/PP3501LR for details of the issues raised.

**Summary of actions taken:** None required.

Response received from Health and Safety Executive (HSE)

### **Brief summary of issues raised:**

The HSE have no comments to make

**Summary of actions taken:** None required.