

Technical Note

Project: **Humber Zero** Job No: **60712174**
Subject: **Response to Environmental Protection Team- VPI**
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Introduction

VPI have submitted a planning application (PA/2023/421) for Planning permission for the construction & operation of a postcombustion carbon capture plant, including carbon dioxide compressor & metering, coding equipment, stacks, substations, internal roads, partial ditch realignment, new & modified services, connections, internal roads, accesses, maintenance & laydown areas.

The Environmental Protection Team at North Lincolnshire Council (NLC) have provided comments in a memo dated 8 June 2023 (Ref PLU007747) on the Noise and Vibration Environmental Statement and associated Figures and Appendices which were submitted as part of the planning application.

Operational Noise Impacts.

The operational noise impacts of the proposed development have been assessed following guidance in BS 4142:2014+A1:2019 'Methods for rating and assessing industrial and commercial sound.'

The standard states that:

"Typically, the greater the difference, the greater the magnitude of impact.

A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.

A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.

The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context."

The Noise and Vibration ES chapter has set the Significant Observed Adverse Effect Level (SOAEL) is set at a *rating level* above the *background sound level* of +10 dB, and the Lowest Observable Adverse Effect Level (LOAEL) at +5 dB, although it should be noted that the context assessment (including the absolute level of the sound under consideration) can vary the overall classification of effects.

VPI and Phillips 66 Ltd are already a continuously operating industrial source in the study area, and there are other industrial and commercial activities in the vicinity. This is likely to mean that residents at the noise sensitive receptors (NSRs) are already accustomed to industrial sources.

The Environmental Protection Department at NLC considers the LOAEL of +5 dB is too high.

NLC have stated in order to prevent 'background creep' and to prevent the potential for adverse impact the Environmental Protection department generally recommends cumulative noise levels should not exceed background sound levels. However, to be consistent with previous VPI permission and others granted under Development Consent Orders in the area, the Environmental Protection department would be willing to accept +3dB above background and would like the applicant to demonstrate they can comply with this level.

The LOAEL was set as +5 dB in the Environmental Statement as it relates to 'observed' effects, a small difference e.g. 1- 2 dB is not likely to be observed by local residents and typically a 3 dB difference is the

minimum perceptible under noise conditions. Therefore a 5 dB difference has been applied for the lowest observed adverse effect.

The Noise and Vibration ES chapter based the BS4142 assessment and proposed mitigation on achieving a Rating Level of +5 dB above the representative background sound level. However as stated in the Noise and Vibration ES chapter, VPI and Phillips 66 Ltd are aiming to achieve a lower rating level of +3 dB above representative background sound level where practicable.

The operational noise predictions for the BS412 assessment are based on a worst case scenario with all of the plant operating at the same time. However, the main source of noise is the large number of air coolers, which would only all be in operation in the highest anticipated ambient air temperatures, so the noise predications are very likely to over-estimate the operational noise on an average day of operation.

We would be happy to discuss further with the Environmental Protection Team to help determine an acceptable Rating Level above the representative background sound level.