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| I N T E R | <h1>MEMO</h1> | North Lincolnshire Council www.northlincs.gov.uk |
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To: Development Management

From: Environmental Protection Team

Your Ref: PA/2023/421

Our Ref: PLU007447

Subject: Planning permission for the construction & operation of a post-combustion 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

Location: Vpi Power Station, Rosper Road, South Killingholme

Date: 8 June 2023

Thank you for your consultation on the above application. I can confirm that this department has the following comments to make.

- AECOM Limited, Humber Zero, Environmental Statement Volume I, Chapter 7: Noise and Vibration, Undated and referenced.
- AECOM Limited, Humber Zero, Environmental Statement (ES): Figures 7.1 – 7.4 ES III, and Appendices 7A, B and C ES II.

The above report has been prepared to support two planning applications Phillips 66 Ltd PA/2023/422, and VPI Immingham LLP PA/2023/421 which collectively form the Humber Zero Project.

This department has reviewed the report submitted and we have the following comments to make:

Noise and Vibration

This chapter of the Environmental Statement (ES) addresses the potential noise and vibration impacts of the development on local residential and other human receptors, Noise Sensitive Receptors (NSRs). The impacts and effects of the proposed VPI Development and Phillips 66 Development are considered separately and for both developments together. Impacts during the construction, operation (including

maintenance) and decommissioning of the Proposed Developments are assessed. In particular, the assessment considers:

- existing and future baseline conditions;
- the effects of noise and vibration resulting from operation of the proposed developments;
- the effects of construction of the proposed developments on NSRs during the site clearance and construction works, including predicted changes in road traffic noise levels on the local road network during construction; and
- the effects of noise and vibration resulting from decommissioning of the proposed developments.

The cumulative effects of noise associated with the proposed developments and other committed developments in the vicinity are described in Chapter 18: Cumulative and Combined Effects (ES Volume I).

This chapter is supported by Figures 7.1 – 7.4, ES Volume III, and Appendix 7A: Noise Surveys, Appendix 7B: Construction Sound Levels and Assumptions, and Appendix 7C: Operational Sound Levels and Assumptions, provided in ES Volume II.

In relation to both construction noise and operational sound effects, mitigation, if considered necessary, would be integrated into the detailed design, in order to meet the limits to be agreed at the nearest NSR.

Baseline Sound Surveys

Baseline sound monitoring was undertaken at four key residential NSRs as follows:

- Monitoring Location 1 (M1) Staple Road (NSR1)
- Monitoring Location 2 (M2) Clarkes Road (NSR2)
- Monitoring Location 3 (M3) Church Lane (NSR3)
- Monitoring Location 4 (M4) Hazeldene (NSR4)

This comprised unattended measurements with observations made on set up and collection of equipment and weather data recorded using a weather station located at NSR 2. Baseline sound levels (from Table 7.12) were recorded as follows:

| Receptor | Time Period | LAeq,T dB | LAF90, 15min dB |
|----------------------|--------------------|------------------|------------------------|
| NSR 1 – Staple Road | Daytime | 54 | 49 |
| | Night-time | 52 | 48 |
| NSR 2 – Clarkes Road | Daytime | 52 | 46 |
| | Night-time | 50 | 45 |
| NSR 3 – Church Lane | Daytime | 52 | 46 |
| | Night-time | 49 | 45 |
| NSR 4 – Hazel Dene | Daytime | 55 | 50 |
| | Night-time | 55 | 51 |

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Operational Noise Impacts

It is reported that during the detailed design stage, potential significant residual effects of industrial sound will be mitigated by location and design. This will include appropriate stack design, use of cladding and shielding where appropriate and, where practical siting of equipment away from site boundaries and NSRs.

The sites will be operated in accordance with Environmental Permits, issued and regulated by the Environment Agency. This will require operational noise to be controlled using BAT, which will be determined through the Environmental Permit application.

The assessment of operational sound levels has been based upon calculations taking account of proposed plant and equipment sound power levels relating to the proposed plant, distance between the proposed plant and NSRs and the acoustic screening offered by existing topography and existing and proposed new buildings.

A +3 dB correction for has been included according to BS4142:2014 to account for the potential that NSRs might identify 'other distinctive character' in the new sound source in the future acoustic environment. The assessment has assumed that the potential sound of a tonal, impulsive or intermittent nature will be designed out of the proposed developments during the detailed design phase by the selection of appropriate plant, building cladding, louvres and silencers/ attenuators as necessary.

Three-dimensional sound propagation models have been developed using the modelling software SoundPlan Version 8.2 to assess the current layout options for the proposed developments. Based upon the predicted sound levels from the model, an assessment of potential impacts at nearby NSRs has been undertaken using the 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 report states that for BS 4142 (BSI, 2014c) assessment purposes, the SOAEL is set at a *rating level* above the *background sound level* of +10 dB, and the LOAEL at +5 dB, although it should be remembered that the context assessment (including the absolute level of the sound under consideration) can vary the overall classification of effects.

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The report also states that it is intended for the proposed developments that the *rating level* will be limited to no greater than +5 dB above the *background sound level* in order to not exceed the LOAEL. Achieving no greater than the LOAEL would ensure that significant adverse effects are avoided, and that other adverse effects are minimised; primary and secondary aims of NPSE. However, it is reported that both Phillips 66 and VPI are aiming to achieve a lower *rating level* of +3 dB above *background sound level* where practicable.

- It should be noted that BS4142:2014 states the following:

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

This department considers therefore that the LOAEL in this assessment is too high.

The report states that it aims to meet a rating level of +3 dB above background sound level where practicable, however the report has not been written to demonstrate that it can meet this level. All data given details +5 above background. The section addressing mitigation measures does not consider +3dB above background and states that based on the worst-case results, further mitigation would be required to achieve the operational daytime and night-time LOAEL criterion of a rating level no greater than +5 dB above the defined representative background sound level at each NSR.

On September 7 2017, permission was granted to construct a new gas-fired power station with a gross electrical output of up to 49.9 megawatts at the VPI Immingham Energy Park A Limited, Rosper Road, Immingham, North Lincolnshire, DN40 3DZ planning reference PA/2018/918 which included the following condition:

Condition 7: The total rating level of the noise emitted from the operation of the installation shall not exceed existing background levels by more than 3dB at any residential property. The assessment of rating levels shall be as described in BS4142:2014.

Reason: for the protection of residential amenity in accordance with local plan policy DS1

In order to prevent background 'creep' and to prevent the potential for adverse impact this department generally recommends cumulative noise levels should not exceed background noise levels, however in order to be consistent with the VPI permission and others granted under Development Consent Orders in the area (details provided below), this department is minded to recommend the condition referenced above.

The preference would be that the rating level, including all relevant penalties does not exceed existing background to avoid "background creep" in the area. However, this department would be willing to accept +3dB above background in line with other recent DCO Applications including:

[The Keadby 3 \(Carbon Capture Equipped Gas Fired Generating Station\) Order 2022](#)

Requirement 29: Control of Noise – Operation

(3) Noise (in terms of the BS4142:2014+A1:2019 rating level) from the operation of the authorised development must be no greater than +3dB higher than the defined representative background sound level during each of the daytime and the night time adjacent to the nearest residential properties at such locations as agreed with the relevant planning authority. [84322140.1 \(planninginspectorate.gov.uk\)](https://www.planninginspectorate.gov.uk/84322140.1)

The Immingham Open Cycle Gas Turbine Order 2020

Requirement 19 Control of noise – operation

(3) Noise (in terms of the BS4142:2014 rating level) from the operation of the authorised development must be no greater than 3dB higher than the defined representative background sound level during each of the daytime and the night time, adjacent to the nearest residential properties at locations agreed with the relevant planning authority. VPI Immingham OCGT | National Infrastructure Planning (planninginspectorate.gov.uk)”

Being mindful that permission should not be granted unless the applicant can demonstrate that it can comply with consent conditions, this department recommends that our comments are relayed to the applicant and the report revised to take account of the condition being mindful that the operation of the developments, independently and cumulatively, will be required to meet this level.

Construction Noise

To determine the temporary noise and vibration impacts that may arise during the construction phase the following matters have been considered:

- noise and vibration caused by construction site activities; and
- noise caused by increases in traffic on existing roads as a result of construction traffic.

Construction noise levels are likely to vary during the different construction phases, depending on the location of work sites and the proximity to NSRs.

At this stage in the development, a construction contractor has not yet been appointed. Site specific details regarding the construction activities, programme and numbers and types of construction plant are not fully available. Therefore, detailed construction noise predictions have not been undertaken. Indicative construction noise predictions have been undertaken using the calculation methods set out in BS 5228 based upon construction information from similar projects and confirmed/ updated by Phillips 66 and VPI. The calculated levels are then compared to nominated criteria to determine whether an adverse impact is expected.

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Construction Noise Impacts - Vpi

Construction noise effects at the NSRs during the daytime periods are predicted to be **negligible or minor (not significant)**.

At NSR 4 there is the potential for **moderate and major adverse (significant)** effects during some of the phases of construction works during the evening, weekend and night-time periods, especially when one or more phases may take place concurrently.

At NSR 1, NSR 2 and NSR 3 there are no exceedances of the construction noise criteria during any assessment period, resulting in **negligible or minor adverse (not significant)** effects.

Combined Construction Noise – Phillips 66 and VPi

At all NSRs there is the potential for **moderate and major adverse (significant)** effects during some of the phases of construction works during the evening, weekend and night-time periods, especially when one or more phases may take place concurrently.

Construction Working Hours

It is likely that some construction activities may need to be undertaken outside of normal working hours and could be 24/7, limited to manage critical periods where required, because certain construction activities cannot be stopped, such as concrete pouring, pipework testing and commissioning but also potentially to manage the construction programme. Where on-site works are to be conducted outside the normal construction working hours, they will comply with any restrictions agreed with the local planning authority, in particular regarding control of noise.

Due to the potential for adverse impact on local residents during the evening and night time periods this department recommends that construction is restricted to daytime hours only except in exceptional circumstances as detailed in the above paragraph. This department has standard working hours which would normally be recommended to be consistent with other local authorities in the area. However due to the distance from local NSR's this department recommends the inclusion of the following condition should planning permission be granted:

1. Working hours condition:

Construction, demolition and site clearance operations shall be limited to the following days and hours, **unless otherwise agreed in advance with the Local Planning Authority:**

- **07:00 to 19:00hrs Monday to Friday.**
- **07:00 to 13:00hrs Saturday.**
- **No construction, demolition or site clearance operations on Sundays or public holidays.**

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- **HGV movements shall not be permitted outside these hours during the construction phase without prior written approval from the Local Planning Authority.**
- **Installation of equipment on site shall not be permitted outside these hours without prior written approval from the Local Planning Authority.**

Reason: To protect residential amenity

Construction Environmental Management Plan

This department has reviewed the following report:

- Environmental Statement – Volume 1 Chapter 4 Construction Programme and Management
- Environmental Statement – Volume II. Appendix 4A: Outline Construction Environmental Management Plan.

This Outline CEMP sets out a series of proposed measures that would be applied by the contractors to provide effective planning, management and control during construction to control potential impacts upon people, businesses and the natural and historic environment.

Site-specific controls, which will be included within the final CEMP, would be developed taking the measures set out in this Outline CEMP into account. This document is therefore in effect a draft document.

With this in mind, this department would recommend the inclusion of the following condition should planning permission be granted:

No stage of the development hereby permitted shall commence until a Construction Environmental Management Plan (CEMP) has been submitted to and approved in writing by the Local Planning Authority. The CEMP shall include the following:-

Noise and vibration: The CEMP shall set out the particulars of –

- a) the works, and the method by which they are to be carried out;
- b) the noise and vibration attenuation measures to be taken to minimise noise and vibration resulting from the works, including any noise limits; and
- c) a scheme for monitoring the noise and vibration during the works to ensure compliance with the noise limits and the effectiveness of the attenuation measures

Light: The CEMP shall set out the particulars of –

- a) Specified locations for contractors' compounds and materials storage areas,
- b) Areas where lighting will be required for health and safety purposes,
- c) Location of potential temporary floodlights,

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- d) Identification of sensitive receptors likely to be impacted upon by light nuisance,
- e) Proposed methods of mitigation against potential light nuisance, including potential glare and light spill, on sensitive receptors.

Dust: The CEMP shall set out the particulars of –

- a) Site dust monitoring, recording and complaint investigation procedures
- b) Identification of receptors and the related risk of dust impact at all phases of the development, including when buildings and properties start to be occupied
- c) Provision of water to the site
- d) Dust mitigation techniques at all stages of development
- e) Prevention of dust trackout
- f) Communication with residents and other receptors
- g) A commitment to cease the relevant operation if dust emissions are identified either by regular site monitoring or by the local authority
- h) A no burning of waste policy

Reason: To protect residential amenity

Assessment of Construction Works Traffic on the Public Highway

The Proposed Developments will affect traffic flows on existing roads in the area within and surrounding the Proposed Development Sites during construction. The assessment focuses on the impact at NSRs located alongside the local road network.

The report (Table 7.20) shows that there is very small increase in road traffic noise due to construction traffic along the construction routes of the Proposed Developments during the peak construction phase. These will result in negligible adverse effects (not significant) at local residential NSRs. Based upon the above, no specific mitigation measures are required beyond those listed.

Assessment of Construction Vibration

Impacts on Humans – Annoyance

Due to distances between the construction works and the NSRs, significant adverse effects are unlikely, the nearest residential NSRs are approximately 340m from the Proposed VPI Development and 545m from the Proposed Phillips 66 Development.

Given the distance between the residential NSRs and the Proposed Developments, no significant vibration effects (i.e. those associated with a medium or high magnitude

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impact) are expected to result from the proposed construction (or demolition) activities and therefore further assessment on residential NSRs has been scoped out.

Impacts on Buildings/ Existing Infrastructure

Given the distance to residential receptors, no significant vibration is expected to result from the proposed construction activities on such receptors and therefore further assessment of the effects of vibration on residential buildings is scoped out. However, if piling, heavy earthworks, vibratory rollers or other significant vibration producing operations are proposed in close proximity to any existing sensitive buildings/ structures, further consideration will be given to potential impacts, once the contractor is appointed and the construction methods and requirements are known.

Decommissioning Noise and Vibration

Appropriate best practice mitigation measures will be applied during any decommissioning works and documented in a Decommissioning Environmental Management Plan (DEMP) for each of the Proposed Developments to control noise effects. This is proposed to be secured by planning condition. No additional mitigation for decommissioning of the Proposed Developments beyond such best practice is considered necessary at this stage. The predicted noise and vibration effects of eventual decommissioning of the Proposed Developments are considered to be comparable to, or less than, those assessed for construction activities.