

Noise & Vibration Management Plan

Introduction

The TEGCO Immingham Ltd Installation at Netherlands Way, Stallingborough, Grimsby, DN41 8DF is an Energy from Waste (EfW) process. The installation is designed to consume 320,000 Te/yr of Refuse Derived Fuel (RDF) based on 10 MJ/kg (LHV), producing: -

- 12 MW electrical export,
- 51 MW thermal export (60 Te/hr) as steam (no condensate return).

The installation is a Combined Heat & Power (CHP) plant sized and is designed to replace the steam and electricity currently generated by an existing CHP plant on an adjacent industrial plant. The existing CHP plant is reaching the end of its operational life and will be decommissioned when the installation is operational.

The need to continue to take waste in the event that steam and/or electricity cannot be exported (e.g. customer is shutdown), the installation is designed such that all steam generated at normal waste feed can pass through the turbine and condenser resulting in 24 MW electrical export.

A proportion of the RDF is sourced from local waste management companies and transported to the installation by road. The remaining is sourced from further afield and transported by rail to 1 of 2 local railheads and the final transfer from the railhead to the installation is by road.

The installation will operate continuously (24 hr/day & 7 day/week) for >8,000 hr/yr.

The installation consists of 2 off 20Te/hr incineration lines (combustor, boiler & feed-water system) and a single turbine and air cooled condenser.

The installation is designed not to generate any waste water from the process during normal operation.

The installation is designed to be fully compliant with the 2019 European BREF for Waste Incineration (JRC 118637) and the associated BAT Conclusions published in the Official Journal of the European Union on 3rd December 2019.

Potential receptors

The nearest residential human receptors are listed in the Table below: -

Identifier	Receptor	Type	Easting	Northing
R1	Council Offices	Commercial	520579	414992
R2	Queens Road	Residential	520034	414789
R3	Mauxhall Farm	Residential	519197	414212
R4	Immingham	Residential	519219	414216
R5	Recreation Ground	Leisure	519293	414601
R6	Kings Road	Residential	519385	414945
R7	Grassmere	Residential	521286	413107

A map showing these locations relative to the installation is included in Appendix 1

The nearest relevant environmental receptors are listed in the Table below: -

Identifier(s)	Receptor	Primary Habitat	Approx. Location
H1_1 – H1_12	Humber Estuary SAC	Atlantic Salt Marsh	1.1 km NE
H1_1 – H1_12	Humber Estuary SPA/RAMSAR	Pioneer, low-mid, upper mid saltmarshes	1.1 km NE
H1_1 – H1_12	Humber Estuary SSSI	Intertidal mudflats	1.1 km NE
H2	North Moss Lane Meadow SNCI	Assumed low and medium altitude hat meadows	1.3 km SSE
H3	Immingham Dock SNCI	Assumed rich fen	0.8 km N
H4	Laporte Road Brownfield Site LWS	Assumed inland dune pioneer grasslands.	0.8km NE
Humber Estuary (H1) is very large receptor and 12 locations along the boundary closest to the installation have been identified.			

A map showing these locations relative to the installation is included in Appendix 1

These receptors are all at some distance from the installation and the noise modelling demonstrates the noise impacts from the installation are “not significant” (zero increase) at the residential receptors closest to the installation, i.e. R2 (670 m north) & R4 (1.4 km west) of the installation.

However there are a number of business premises adjacent to the southern boundary of the installation that could be impacted by noise arising from normal activities. These premises generally face south, with the back of the buildings facing the site boundary, reducing potential sound propagation into occupied areas. The prevailing wind is from the south west which will tend to reduce sound propagation towards these premises.

These factors, while beneficial, do not replace the requirement to use best practice or BAT to prevent (or at least minimise) potential noise emissions. The activities with the potential for noise emissions are identified below and the design/operational techniques used to prevent fugitive emissions from each activity are identified below.

Potential sources of noise and vibration

There is potential for noise generation from the following sources at the installation: -

- Large fans (noise will generally be emitted from the gas discharge point (e.g. stack or vent),
- Large motors,
- Material handling systems,
- Vehicle movements on site roadways (especially during quiet hours),
- Process alarms etc.

Large fans (noise)

The ID fans have the potential to result in noise emissions from the stacks due to resonance in flues or ductwork etc. This is a well understood issue and is prevented by good design flues/ducts. The ID fans are installed within enclosures that will prevent local propagation of noise from the casing etc.

The ACC fan is a potential source of noise, however the ACC incorporates sound baffles (on all 4 sides) to prevent the propagation of casing noise.

All fans are designed to ensure that noise generated is within industry standards meaning that suitable enclosures can be specified.

Large fans are installed on anti-vibration mounting to prevent transmission of vibration into building structures and the ground.

Large Motors (vibration)

Large motors are usually associated with large fans. The measures identified above to reduce noise from fan casings/pump bodies will also be effective for motor generated noise.

All motors are designed to ensure that noise generated is within industry standards meaning that suitable enclosures can be specified.

Large motors are installed on anti-vibration mounting to prevent transmission of vibration to building structures and the ground.

Materials handling systems

Materials handling systems can generate noise and this can either be continuous (e.g. belts rubbing) or intermittent (squeaks or air pulses etc.). These systems are located within the process buildings and/on the northern side of the installation meaning that the process buildings act as barriers to prevent sound propagation to the adjacent premises.

Vehicle movements on site roadways

HGV vehicle movements can result in significant noise, however the vast majority of vehicle movements are along the roadway on the northern side of the site meaning that the process buildings act as barriers to prevent sound propagation to the adjacent premises.

The adjacent premises are commercial/engineering premises, some operating extended hours, meaning that background noise from vehicle movements/engineering equipment is already present during normal operating hours. There are no HGV vehicle movements to/from the installation during night hours.

Process alarms etc

The process alarm annunciators are generally located within the control room ensuring prompt response from operational staff and preventing them being heard off-site. Any additional alarm annunciators, installed locally to process equipment will also be silenced when the alarm in the control room is silenced. These alarms are also located within the process buildings or on the northern side of the installation.

Conclusions

The measures outlined above, combined with the location of the installation (away from sensitive receptors) lead TEGCO to conclude that a further specific noise & vibration management plan is not required.

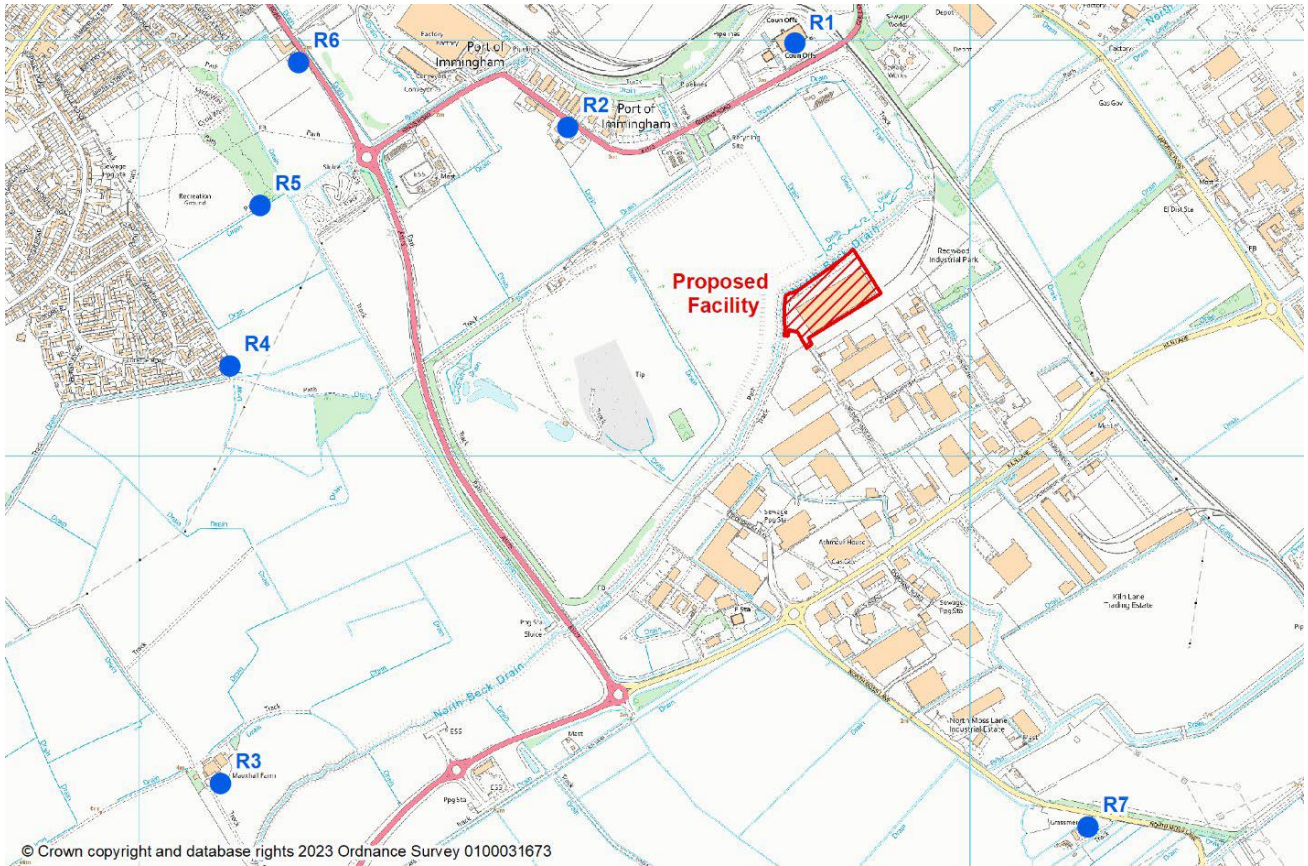
ISO 14,001 includes requirements to have procedures to monitor & review performance including emissions and complaints. In the event that noise or vibration does do prove to be an issue, additional measures and/or specific noise & vibration management plan will be implemented.

Non-Technical Summary

Appendix 1

- 1. Potential Human Receptors**
- 2. Potential Environmental Receptors**

1. Potential Human Receptors



2. Potential Environmental Receptors

