

## **Control of noise from proposed new energy centre**

### **Planning Application No: 22/00070/FUL**

The proposed location of the new energy centre is within the boundary of Innospec Manufacturing Park, Oil Sites Road, Ellesmere Port, CH65 4EY.

The site is located within an industrial area, bordered to the North by the Manchester Ship Canal and to the South by Oil Sites Road and then the M53 motorway. The closest noise sensitive receptor (residential housing at Robinson Road) is separated from the site by the M53 motorway.

An initial desk top screening shows that the expected residual sound pressure level at the nearest noise sensitive receptor is below 28dB.

It is considered, therefore, that the noise attenuation included in the design is adequate and no further noise reduction measures are required.

### **Calculation of Sound Pressure Level at nearest noise sensitive receptor**

Distance to Closest noise sensitive receptor = 802m at Robinson Road

#### **Noise rating for each engine unit**

External Acoustic Enclosure & Fan: 75dB(A) @ 1m

Attenuators: 75dB(A) @ 1m

Exhaust Silencers: 75dB(A) @ 1m

DAC Intercooler Water: 75dB(A) @ 1m

DAC Primary: 75dB(A) @ 1m

#### **Noise rating for each Boiler**

Boiler burner (shrouded) 75dB(A) @ 1m

#### **Addition of Sound Pressure Levels**

$$SPL_{Total} = 10 \cdot \log_{10} [10^{SPL1/10} + 10^{SPL2/10} + 10^{SPL3/10} \dots + 10^{SPLN/10}] \text{ (dB)}$$

Where SPL1 to SPLN are the separate sound pressure levels, and N is the total number of separate noise levels. There are a total of 12 items of equipment each with a noise rating of 75dB(A) @ 1m

$$SPL_{Total} = 10 \cdot \log_{10} [12 \times 10^{75/10}] \text{ (dB)}$$

$$SPL_{Total} = 85.8 \text{ dB}$$

### Sound Attenuation - Point Source

$$SPL_{(R2)} = SPL_{(R1)} - 20 \cdot \log_{10}(R2/R1) \text{ (dB)}$$

Where:

$SPL_{(R1)}$  = Known sound pressure level at the first location (equipment vendor data)

$SPL_{(R2)}$  = Unknown sound pressure level at the second location

R1 = Distance from the noise source to location of known sound pressure level = 1 m

R2 = Distance from noise source to the second location = 802 m

$$SPL_{(R2)} = 85.8 - 20 \log_{10}(802/1)$$

$$SPL_{(R2)} = 85.8 - 58.08 = \mathbf{27.72 \text{ dB(A)}}$$