

From: Driver, Jonathan
Sent: 29 November 2023 08:38
To: Richardson, Leanne
Subject: RE: APP/23/00127 Wartsila 4 Marples Way

Leanne,

I have now found time to go through the air quality/emissions assessment ('AQA') in some detail. I'll spare you the detail, but it's clear that the report has been fairly hastily put together and there are a number of errors and issues that may or may not be material to its conclusions.

The report includes remarkably little on the nuts & bolts of how the model has been run – it is reliant on the inherent trustworthiness of the model as a commonly used commercial product. This notwithstanding, the model output is only as good as the inputs, and this requires a very clear conceptual model. The report skips the detail in this regard, and the noted errors undermine confidence that the omitted detail may be simply assumed to be appropriately selected values/parameters.

Whilst the report does include a section on 'uncertainty', it does not address the uncertainties quantified within the emissions monitoring report upon which it is based ('the EMR'), nor with the representativeness of the samples reported within the EMR. The measures employed to reduce uncertainty are substantially outweighed by the combined effect of the designed-in worst case assumptions (24/7 operation) coupled with the omission of a clear conceptual model, or details of parameters used to set up the ADMS model.

Details aside, the principle issues as far as I see it are that;

- The duct outlet has been modelled as a single 'stack'. Use of model defaults would likely be tailored to a vertical-, and so vertically discharging- stack (where the efflux temperature and velocity would probably translate within the model into vertical distribution), this contrasts with the photos of the installation, which shows two horizontally discharging ducts. The absence of detail within the report means that we are not capable of judging whether the modelled dispersion is remotely comparable to the dispersion behaviour in the real-world (as installed, in use).
- This notwithstanding, perhaps unsurprisingly the largest modelled uplift to particulate concentrations is at the closest modelled receptor. However, the modellers chose not to include the residential receptors closest to the flue(s) in the cohort of modelled receptors. Giving the benefit of doubt, this was perhaps done for understandable reasons (with respect to prevailing wind conditions-), however given that one of the horizontal flues discharges at the southwest corner of the Wartsila Building, at an active velocity of 13 m/s, at a height approximating to the upper floor habitable rooms of the nearby residences, that the mass of the building has been accounted for, and that the modelled receptors are on the north and east of the building, with the closest modelled receptors arguably within the 'shadow' of the Wartsila building (in contrast to the omitted dwellings at 5-13 Abrams Way)

Taken together, this means that we are not really able on the basis of the submitted report to judge whether or not the model output should be reasonably taken to be representative of the worst case exposure which was the reason for raising concern about the emissions. Were we able to say that the results were representative, I would be able to agree that the results are not a cause for concern, and I could support a positive determination on emissions grounds.

Would it be possible to please ask the applicant / authors to;

- confirm the functional purpose of the flues identified as 1 & 2 in the attached pdf. I would infer from the reports that 2 is possibly an air inlet, and 1 is the discharge outlet, and that the two TPM samples reported in the EMR are taken as two perpendicular transects (A & B) taken across the centre of the duct (and that they do not represent a sample from each flue, with both being discharge flues) – it would be helpful for this interpretation to be explicitly confirmed.
- explain the two sample results reported in the EMR insofar as they contribute to the 'conceptual emission' being modelled – I note that the AQA uses a value which likely derives from a simple mean of run 1 & run 2 measured TPM values, and that the report refers to the value used as both 'representative' and 'maximum'/'worst case', and it can't be both. It would assist the conceptual model greatly to understand whether we should regard the EMR results to be a worst case, or simply 2 sample results from a sample distribution which might have much wider variability.
- describe the significance or triviality of the implicit uncertainty in the modelled emission (nominally 40%-165% of the mean emission value, based upon the EMR results, accounting for mass & volumetric uncertainties), e.g. is the impact within the model linear, or exponential.
- confirm that the model accounted for a 0 degree (horizontal) the discharge angle in the vertical plane, and a rotational angle in plan which reflects the orientation toward ENE, or alternatively to describe the reasons why orientation parameters would be trivial in this context, especially in lieu of receptors at 5-13 Abrams Way being specifically modelled.
- demonstrate the triviality of modelled height at the receptor. The report states both that a varied heights were modelled to reflect the window elevations of each building, but only reports 1.5m height, which for nearby receptors I suspect is likely to under represent the process contribution.

I acknowledge that the authors state that the model assumes 24/7 process operation, and that this is likely to vastly overestimate the annual average process contribution. I would however also challenge the reference to the EA screening values as being the definitive significance test –the AQA for this process should be assessed against planning policy, which differs from permitting criteria. Meeting tier 2 EA screening criteria could result in an adverse impact to air quality that is capable of being described as 'substantial' against the IAQM 'planning for air quality' guidance, and therefore cannot be taken to be a benchmark of triviality. This said – the screening values presented in the AQA are substantially in error, and calculating the values in line with the guidance yields a significantly more favourable result. Assuming that the items raised above can be shown to be trivial in effect, I will be able to agree the overall conclusion of the report. The principle issue is the fundamental parameterisation of the modelled scenario, which we must be satisfied is appropriate if we are to accept the results.

If the authors opt to undertake further model runs (or need to, to answer the above queries-), I would recommend including an additional receptor at either 9 or 11 Abrams Way, running 'bracketed' emissions scenario's which account for the upper & lower bounds of uncertainty, and to include heights for 1st and 2nd storey windows where these exist at modelled receptors. I am principally concerned about dismissing risk to the closest receptors, and I don't think it will be necessary to re-consider receptors R5-R8.

Best Regards,

Jon

Jonathan Driver
Environmental Control Officer

Havant Borough Council Environmental Health
Public Service Plaza, Civic Centre Road, Havant, Hants PO9 2AX

Tel (Direct Dial): 023 9244 6677
Tel (Mobile) : 07887 951 106
Tel (Team Admin): 023 9244 6670

Email: jonathan.driver@havant.gov.uk

www.havant.gov.uk
www.facebook.com/havantboroughcouncil
www.twitter.com/havantborough