

Assessment of Air Quality Impacts from STOR facilities and other limited-hours-of-operation plant

Interim Statement for consultation

The IAQM issues Position Statements on matters that could affect the way in which Members carry out their professional tasks and on air quality topics and issues where the IAQM can provide a unique perspective from which to give a professional opinion. They are initially issued as Interim Statements to allow members the opportunity to comment.



The issue

In air quality assessments for STOR facilities (and assessments for any significant combustion plant that is operated on a limited-hours basis) many have simply concluded, owing to the limited number of operational hours in a year, that the combustion plant emissions will not have a significant effect on long-term pollutant concentrations.

However, if emissions are sufficiently high (as they can be from large numbers of older diesel-powered generators) then the limited number of hours of operation may not be a robust enough basis upon which to conclude that effects will not be significant. In addition to the potential long-term impacts, modelling carried out on behalf of DEFRA (by the Environment Agency (EA)) has shown the potential for adverse short-term impacts with significant effects on local air quality. These also need detailed consideration when assessing the air quality implications of STOR facilities.

Additionally, where dispersion modelling has been carried out, in their consideration of total long-term concentrations many air quality assessments simply calculate this as being the sum of the process contribution and the Defra 'mapped' background concentration. This approach may not be representative of existing ambient concentrations of pollutants, particularly in urban environments and may therefore underestimate total pollutant concentrations.

Furthermore, planned developments which include combustion plant operating on a limited-hours basis often do not have a strict limitation applied through the planning process as to their maximum permitted number of operating hours in a calendar year. Without any limitations on the operational hours applied through the planning process, these plant could potentially operate continuously throughout the year. Higher levels of utilisation than anticipated during the planning process would result in more adverse air quality impacts which may not have been fully evaluated within an air quality assessment that was based on the assumption of a limited-hours operation.

When the significance of effects on local air quality is considered, an approach adopted by many practitioners is to use the EA's methodology, which frequently results in the assumption that where total concentrations are below 100% of the objective, impacts are automatically negligible regardless of the receptor sensitivity and the magnitude of the concentration with the development.

IAQM's Position on this issue

The IAQM considers that assessment of the impact of emissions from STOR-type plant cannot be disregarded on the basis of limited operating hours. It is also important that emission rate data appropriate to the proposed plant are applied in assessing both long-term and short-term exposure.

Careful consideration of 'the concentration of the substance that's already present in the environment' (existing baseline ambient concentrations) must be carried out to ensure that the contribution from all local sources near to receptors is appropriately accounted for.

The EPUK & IAQM's guidance² on the assessment of air quality for planning includes an approach for describing impacts. The IAQM's position is that this guidance should also be applied when assessing the impacts of combustion plant that is operated on a limited-hours basis. Therefore, predicted total concentrations that are below the objective level should not automatically lead to conclusions that impacts are 'negligible' and therefore 'not significant'. Instead, the IAQM guidance should be followed and the impact should be assigned an appropriate impact descriptor; this may then show that impacts are not 'negligible' at concentrations below the objective level.

References

¹ https://consult.defra.gov.uk/airquality/medium-combustion-plant-and-controls-on-generators/supporting_documents/Generator%20EA%20air%20dispersion%20modelling%20report.pdf

² <http://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf>

About the Institute of Air Quality Management (IAQM)

The IAQM aims to be the authoritative voice for air quality by maintaining, enhancing and promoting the highest standards of working practices in the field and for the professional development of those who undertake this work. Membership of the IAQM is mainly drawn from practising air quality professionals working within the fields of air quality science, air quality assessment and air quality management.

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