Best Available Techniques (BAT) Assessment - Emergency backup diesel engines on installations

This document demonstrates how the emergency backup generators meet BAT as per guidance, Emergency backup diesel engines on installations: best available techniques (BAT) - GOV.UK.

Build Standards

BAT	Evidence of BAT
"Engines must be optimised to reduce emissions ('emissions optimised'). Engines that are optimised to reduce fuel ('fuel optimised') have greater emissions and will not meet BAT unless they have secondary abatement. *Combustion plant specification sheets that keep to one or more of the former 2g TA Luft and United States Environment Protection Agency (EPA) Tier 2 (or equivalent) standards are acceptable proof of BAT plant. These do not need on-site exhaust emission monitoring.* *If you can show your engine achieves the following guidance level (which is not an ELV compliance requirement), it can be considered emissions optimised.* *Approximately 750mg per m3 NOx (as NO2) at 15% O2 standard temperature and pressure, dry, 273K and 101.3kPa (equivalent to 2,000mg per m3 at 5% O2 – commonly termed '2g') at a typical emergency load (usually greater than 67% of standby power rating).* *You should send copies of your engine specification sheets when you apply for your permit, as these will provide evidence of these requirements and proof of BAT."*	Data sheets for the generators can be found in 'RHH Data Sheets'. Stack emissions monitoring has been undertaken for the generators, and can be found in 'RHH Stack Emissions Results'.
"Your stack design should ensure good flue gas dispersion. Stacks should be	Stacks are vertical, and emissions are not obstructed.

vertical and emissions should not be obstructed by caps or cowls."	

Operational Controls

BAT	Evidence of BAT
Minimise how much you test diesel engines. You must test for less than 50 hours a year. *Avoid testing engines when the air quality is poor.* *Do not test more than one engine at a time.* *When using backup diesel generators, you must manage the impacts on air quality to minimise harm to human health and the environment.*	Generators are tested for less than 50 hours a year. The testing of the standby generators is carried out in line with the 'Health Technical Memorandum 06-01 Electrical services supply and distribution'. All standby generator plant is tested online with the building load every month. The duration of the online test is at least one hour, but preferably two hours. In Royal Hallamshire Hospital, two generators are being tested at a time. For example, there are 3 x HV generators and 1 x LV generator at the RHH, and two HV generators are run at a time; generator 1 and 2 are run one month, then generator 2 and 3 the next month, then generator 3 and 1 *etc*. This is because one generator on its own does not have the electrical capacity to facilitate the whole of the hospital.