

Summary interim statement for Mogden application – non-technical summary

Application reference: EPR/WP3533LT/V004

Operator: Thames Water Utilities Limited

Facility: Mogden STW Combustion Plant

- **A 1.1a1a variation application, EPR/WP3533LT/V004, was submitted by TWUL on 27/4/2020 to permit the combustion plant at Mogden STW.** The application was required given the aggregated thermal input of all combustion plant at the site is above 50MWth. The actual total being 56.06MWth.
- **Subsequent to the application being submitted, TWUL communicated to the EA on 30/9/2019 that none of the STW's standby diesel generators would be run for triad/STOR/CM.** Instead, they would be run solely as *the equivalent* of an excluded generator under Specified Generator Controls (SGC). The outcome being that each standby diesel generator will be run for less than 50hrs per annum to allow maintenance testing of these units to support their primary purpose: *provision of backup power when for any reason mains supply is lost under an emergency scenario. This is a reduction from an envisaged 154 run hours per annum to 50 run hours (maximum).* NB: Note that combustion plant which is not a specified generator (e.g. not a MTU engine), such as the diesel driven storm pumps, will operate to a different running assumption but are a relatively small contribution to aggregated thermal input.
- As the introduction of abatement (SCR) was interlinked with the project for elective running for triad/STOR/CM this will not now be implemented. In short, minimum essential running hours will continue but with unabated emissions.
- The application air quality chapter – '**Appendix B – Air Quality Assessment**', the findings of which are then summarised in the main application supporting information document in '**Section 5. Impact on Environment**', do not yet reflect this revised operational regime.
- The initial conclusions from internal discussions are that TWUL can reduce the occurrence of but not entirely eliminate the risk of short term NO₂ impacts to human health. This can be achieved through actions *such as* reviewing maintenance programmes to identify any improvements and running diesel generators sequentially rather than concurrently during routine maintenance testing.
- The risk of significant short-term air quality impacts from nitrogen dioxide (NO₂) during regular maintenance testing is substantially reduced compared to that currently presented as Scenario 2.1 (which conservatively modelled the monthly testing as combined operation whereas in reality, no more than one test of a standby generator will be undertaken at any time).
- Although SCR abatement will not be implemented, TWUL are considering modifying a proportion of horizontal stacks to vertical *where this is practicable and cost effective.* Such measures would aid dispersion and reduce downwind concentrations when those engines are tested.
- The Environment Agency has asked TWUL to consider the potential for acute health impacts on nearby human health receptors *during longer periods of unavoidable sequential diesel generator running.* The principal location of concern being at 2 residential receptors shown

in the application document that exceed the acute exposure guideline criteria (for example the US EPA AEGL1 for NO₂ – 60 min) during the operation of the standby generators (scenario 2.1, table 4-10 of air quality assessment report). In light of the proposed maintenance testing of single engines, only two relevant events will apply to these results. The first, being a single annual 'black start' test where all generators are run concurrently as a test of their full and on-going ability to provide emergency power to the STW. The second, where concurrent diesel generator running is needed in a genuine emergency, and in turn, prevent a pollution risk to controlled water courses. For a black start test (duration 3 hours), whilst this is an absolute requirement, TWUL may be able to refine the timing of this test so that it avoids the emissions contributions of morning and evening peak hour traffic 'rush hour' contributions. For a genuine emergency, this is outside of TWUL's operational control (i.e. the principal cause arising from an issue to the local power supply grid). However, from a rapid review for the last five years, only a single occurrence of genuine emergency operation was recorded: c. 8 hours concurrent diesel generator running over 43,800 hours or 0.018% of the time. Whilst it cannot be used as being fully indicative of future circumstances that might arise, it does provide some reassurance that genuine emergency use is likely to be extremely infrequent.

- The EA has requested that following duly making and determination that TWUL looks to further consider NOx impacts in respect to quantifying, and reducing where required and practicable, short term acute exposure to NOx.