GLA DEADLINE 8A SUBMISSION: APPENDIX B

GLA note on the Applicant's proposed removal of suggested DCO Requirement 15: Emission Limits Work Number 1A

1. Context

1.1. At Deadline 5, the Applicant presented a revised DCO (revision 3) with the following Requirement 15 included in Schedule 2:

> *15.—(1)During the operational period of Work No.1A,the average emission limit value for nitrogen oxide and nitrogen dioxide, expressed as nitrogen oxides, of the combustion emissions discharged through the emissions stack comprised in Work No.1A for each day must not exceed 120mg/Nm3 (expressed at 11% oxygen, dry flue gas, 273.15K), except in such exceptional circumstances as agreed by the Environment Agency.*
>
> *(2) During the operational period of Work No. 1A,the annual emission limit value for nitrogen oxide and nitrogen dioxide, expressed as nitrogen oxides, of the combustion emissions discharged through the emissions stack comprised in Work No. 1A must not exceed 451 tonnes per annum*[1].
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> *(3) In sub–paragraph 1, "day" means a period of twenty–four hours beginning at midnight.*

1.2. At Deadline 7, the London Borough of Bexley ("LBB") proposed an amendment to the description of Work 1a in schedule 1 to read:

> *"WorkNo.1—Works to construct an integrated energy park—*
>
> *(a) Work No.1A— an energy recovery facility <u>with a capacity of no more than 805,920 tonnes per annum of waste</u>….*

1.3. In its Deadline 7a submission, the GLA supported the inclusion of the new Requirement 15 but recommended that Requirement 15 (2) was expanded to include all pollutants of concern, not just Oxides of Nitrogen.

1.4. The GLA support LBB's proposal to cap the total tonnage of waste but considers that the cap should be set at 655,000 tonnes per annum to ensure that the development does not exceed the level assessed in the Applicant's Carbon Assessment.

1.5. At the hearing on 19th September, the Applicant accepted LBB's amendment to the description of Work No. 1A. The Applicant stated that it had agreed with LBB that the inclusion of the amended description of Work No. 1A rendered the inclusion of Requirement 15 unnecessary. As a result, it proposes to remove Requirement 15 from further drafts of the DCO.

[1] The 451 tonnes per annum figure can be arrived at by multiplying the emissions rate in g/s in table 7.17 of the Environmental Statement by the number of seconds in a year.

1.6. This note sets out the GLA's response to this proposal.

2. Air Quality impacts and Environmental Permit

2.1. Planning decisions proceed on the assumption that an Environmental Permit will be effective in operation and that any limits or conditions imposed by the Environmental Permit should not be duplicated in a planning permission or a development consent order.

2.2. Amongst other things, the Environmental Permit will put in place strict emission limits on the REP, expressed as a mass of pollutant per normalised meter cubed of expelled air. These emission limits are based on Best Available Techniques, which are agreed at the European level.

2.3. The potential impacts of these emissions on the surrounding area are described through the modelling exercise undertaken as part of the Environmental Impact Assessment.

2.4. As set out in the Applicant's Environmental Statement ("ES"), the modelling of emissions requires an *emissions rate* (that is mass of pollutant released per unit of time) to be derived from the emission limit and other operational characteristics of the plant. This is because it is the rate of emissions, as opposed to the concentration, that determines the scale of impact.

2.5. This process for deriving an emissions rate from the concentration limits is set out in tables 7.16 and 7.17 in Chapter 7 Air Quality of the ES (Document Reference 6.1) and accompanying text. Notwithstanding the GLA's concerns about the value of the expected emission limit for NOx, it accepts that the derivation of the emission rates was calculated correctly.

2.6. Table 7.16 of the ES sets out the additional parameters that are important to calculate an emissions rate from an emission concentration. Of these, the stack diameter is controlled by the DCO; and oxygen, moisture content, pressure and temperature are accounted for in the "normalisation" of the emission limit.

2.7. Flue gas velocity is not controlled by the Environmental Permit. Effectively, this means that the total volume of expelled air is not subject to external controls. As a consequence, neither is the emission rate nor, ultimately, is the actual impact of the development on local air quality fully controlled by the Environmental Permit.

3. The function of Requirement 15

3.1. Requirement 15 (1) introduced an emissions limit for Oxides of Nitrogen in the same form as would be expected in the Environmental Permit.

3.2. The value suggested by the Applicant for this emission limit was the same value as was used in the ES. During the examination process, there has been some discussion about the precise value of the emission limit likely to be imposed by the Environmental Permit, so the GLA welcomed the clarification provided by Requirement 15 (1). However, it acknowledges that an emission limit in this form may stray into territory properly left to an Environmental Permit.

3.3. Requirement 15 (2) introduced an annual cap on the total emissions of Oxides of Nitrogen in tonnes per annum. Effectively, this is a maximum emissions rate, albeit over a longer timescale than the rate used in the ES.

3.4. The GLA considers that the use of an annual emissions rate is appropriate for two reasons: first, it allows for short term fluctuations in the operation of the plant to average out over the longer timeframe, so is not unduly onerous on the Applicant; and second, it is consistent with the annual timescale used in ambient metrics of air quality and legal or health based exposure limits.

3.5. As described above the emissions rate is affected by the total volume of expelled gas, which is outside the scope of an Environmental Permit.

3.6. The GLA considers that a requirement that has the effect of capping the emissions rate is necessary to ensure that the plant operates within the parameters assessed and set out in the Environmental Statement, as this would not be achieved with the Environmental Permit alone.

3.7. Furthermore, the GLA considers that 15 (2) would be an effective mechanism for constraining the Nitrogen Dioxide impacts in line with the ES. Its recommendation to the ExA is that the approach be extended to cover other pollutants of concern.

4. Throughput cap

4.1. At the hearing on the 19th of September, the Applicant contended that Requirement 15 was unnecessary because of the inclusion of a throughput cap in the description of Work No. 1A in schedule 1 of the DCO.

4.2. Given that the Environmental Permit controls the concentration of pollutants in the air expelled from the plant, a throughput cap could be effective in securing air quality impacts in line with the ES if it would effectively control the volume of expelled air.

4.3. Thus, in order for the ExA to be in a position to accept or reject the Applicant's case, it is important to understand the relationship between waste throughput and the volume of flue gases produced.

4.4. The draft BREF note for Waste Incineration[2], as well as defining emission limits and control techniques, describes the likely operational parameters and characteristics of a range of waste incineration technologies.

4.5. In chapter 3.1 the BREF note states:

"Municipal waste incineration plants generally produce flue-gas volumes of between 4500 m^3 and 6000 m^3 per tonne of waste (calculated at 11% oxygen) depending on the LHV[3] of the waste."

4.6. This is a wide range of values and could have a significant impact on the emission rate of the development even where Environmental Permit conditions are met.

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[2] https://eippcb.jrc.ec.europa.eu/reference/BREF/WI/WI_BREF_FD_Black_Watermark.pdf

[3] "LHV" is defined in the BREF note as the "Lower heating value" of the material, expressed in MJ/kg.

4.7. For instance, at a throughput of 805,920 tonnes and a NO_x emission limit of 120 mg/m^3, annual NO_x emissions could range from 435 tonnes to 580 tonnes. At the lower throughput limit suggested by the GLA, the range could still be from 353 tonnes to 471 tonnes[4]. In both cases the upper end of the range exceeds significantly the impact described in the ES, which is meant to present a worse-case scenario.

4.8. The Applicant has made no provision for any mitigation measures that would, or could, be put in place in the event of impacts which exceed those presented in the ES.

4.9. The GLA does not accept that a throughput cap, even in combination with the likely conditions of the Environmental Permit, would be effective in ensuring that the impacts of the development would be within the parameters assessed and set out in the ES.

5. Recommendation

5.1. As has been demonstrated, the throughput cap would not be entirely effective. The GLA considers that the retention of Requirement 15 (2) is necessary and effective to ensure the adverse impacts on air quality of the development not exceed the parameters set out in the Environment Statement.

5.2. Given that Nitrogen Dioxide is not the only pollutant with likely health or environmental effects, the GLA recommends that the additional pollutants set out in the ES Chapter 7 table 7.17 are included in Requirement 15 (2), as set out in the GLA's "Deadline 7a–13 September 2019-Comments on any additional information/submissions received by previous deadline."

5.3. In relation to proposed Requirement 16 (1), this sets an emission limit for the CHP engine associated with Work No. 1B. Without prejudice to the GLA's position that the gas should preferably not be burned on site, the GLA agrees with the Applicant's submission that this is necessary because it sets an emission limit which is more strict than would be likely to be imposed by the Environmental Permit.

[4] These figures are approximate and have not been corrected for moisture content, temperature or other parameters. They are included as indicative estimates only.