4. Air Quality and Human Health

Introduction

4.1 The purpose of this Chapter is to respond to the third party representations received, specifically objection nos. 5211, 5210, 5196 and 5158, which raise concerns in relation to impact on human health as a result of air quality and the ability of the proposed development to comply with environmental (air quality) standards for UK EfW facilities.

4.2 This Chapter is accompanied at Appendix 4.1 with a detailed response from RPS, responsible for the original Health Impact Assessment (HIA) undertaken in 2014 and its subsequent review in March 2019. Their response addresses the health issues raised in objection nos. 5210, 5196 and 5158 in full which are summarised in this Chapter.

4.3 In response to objection no. 5211 related to compliance with environmental (air quality) standards, advice has been provided by Fichtner, a consulting engineering firm, with experience in PPC permits and requirements of the environmental standards referred to in the representation. Their advice is summarised below.

Human Health

4.4 The health related third party representations received have been reviewed and responded to in full by RPS at Appendix 4.1.

4.5 It should also be noted that DfI Strategic Planning Division re-consulted with Environmental Health and NIEA in relation to objection no. 5196 and Public Health Agency in relation to objection nos. 5158 and 5196. Their comments have been received raising no objection with Public Health Agency stating their expectation that predicted levels of pollutants, including particulates, be taken into account in considering this application. The RPS response provided explains how particulates have been considered as part of the HIA.

4.6 Objection no. 5210 references a British Medical Journal article related to hospital admissions associated with short term exposure to $PM_{2.5}$, even where daily $PM_{2.5}$ concentrations were below the current WHO guidelines. The study is not relevant for a number of reasons: it examines the impact on hospital admissions for increases in PM concentrations more than 38 times the predicted increase associated with the proposed development (even in assuming a highly hypothetical scenario); it has a range of limitations, including not accounting for factors such as smoking which itself is a major cause of exposure $PM_{2.5}$; and is not representative of the wider population on the basis that results are only inclusive of participants aged 65 or older.

4.7 Overall, the original HIA concluded that the negligible to slight changes in air pollution and population exposure to this change would not result in any measurable annual change in health outcomes across the population. In light of the HIA conclusions, this does not amount to a tangible reason for refusing planning permission.

4.8 Similarly, objection no. 5196 refers to PM exposure that can give rise to significant health effects, suggesting there is no evident *'safe level'*. The potential health impact from emissions for air quality is well known, understood and inform air quality objectives set to protect public health and European environmental regulatory requirements addressed as part of the original HIA which applied the epidemiological evidence inferred by the representation. The HIA also looked at the absolute change in air pollution, regardless of whether or not that change is above or below a certain threshold.

4.9 As above, the original HIA found the proposal to comply with air quality objectives set to protect public health at all receptors and concluded that the negligible to slight changes in air pollution and population exposure to this change does not result in any measurable annual change in health outcomes across this population.

4.10 Objection no. 5158 again raises concern in relation to PM and adverse health effects, including the site's location in an increasingly residential area and the susceptibility of those living with pre-existing health conditions.

4.11 RPS in the original HIA intentionally adopted a robust hypothetical worst-case scenario to provide the highest level of assurance that the development would not result in adverse health impacts. This scenario assumed the entire population of Antrim, Belfast and Newtownabbey lived in the location predicted to experience the greatest increase in PM_{10} pollution. As an extra level of assurance, the assessment assumed that the entire PM_{10} fraction was $PM_{2.5}$ (where $PM_{2.5}$ is associated with a higher level or risk to health but in reality, as a subset of PM_{10}, is always of a lower concentration). The findings of this highly hypothetical assessment still did not result in any measurable change in health outcomes across this population.

4.12 In summary, despite the recent objections received commenting upon a selected health evidence base, all of the health-related concerns have already been assessed and addressed within the original 2014 HIA and the most recent evidence only reinforces its conclusions.

Environmental (Air Quality) Standards

4.13 The applicant has applied for a PPC permit as required by The Pollution Prevention and Control (Industrial Emissions) regulations (Northern Ireland 2013 (NISR 2013/160), referred to as the PPC NI Regulations. A draft PPC permit was previously completed by the Industrial Pollution and Radiochemical Inspectorate (IPRI) in June 2015.

4.14 Objection no. 5211 states that the application has not demonstrated compliance with the following environmental standards for waste incinerators – agreed at European level, which is a current legal requirement for UK EfW facilities:

Commission Implementing Decision (EU) 2019/2010 of 12 November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for waste incineration (notified under document C(2019) 7987) (Text with EEA relevance).

4.15 In order to operate, the facility will be required to comply with the Pollution Prevention Control (NI) Regulations and any associated BAT conclusions. The author of objection no. 5211 confuses the EIA process and the PPC permitting regime.

4.16 BAT conclusions are regularly updated to drive down emission limits and deliver environmental improvement. The operator of the facility will, through the PPC permitting process, be required to comply with all extant BAT conclusions which will be updated and revised throughout the lifetime of the project. If the operator is unable or unwilling to comply with any updated BAT requirements the facility will not lawfully be able to operate.

4.17 The authors of the EIA, in carrying out their assessment adopted robust and cautious assumptions and based their analysis on higher emission limits. The air quality impact assessment undertaken as part of the ES has demonstrated that the impact of the proposal is acceptable at higher limits and therefore clearly will remain acceptable at any lower limits applied by BAT. No additional mitigation will be required to comply with reduced emission levels; this will solely require improved efficacy of the proposed abatement design.

4.18 IPRI in their consultation response dated 05 August 2020 providing comment on objection no. 5211 reinforce this position and note the following:

"…the new Waste Incineration Best Available Techniques Reference Document (BREF) and subsequent BAT conclusions was published on the 3rd December 2019. The BAT conclusions include the BAT-associated emissions levels which have the potential, through their translation into emission limits, to drive a sizeable reduction in emissions from the waste incinerator sector. Compared with the existing standards, the new BAT conclusions deliver a reinforced level of protection.

Normally operators would have up to four years in order to comply with the new emission limits however due to the plant not being constructed prior to the publication of the BAT conclusions the operator would need to comply immediately with the new requirements. The operator should contact the Industrial Pollution Radiochemical Inspectorate to discuss the next steps in order to achieve this.

As part of the permitting process and review of the new BAT conclusions the applicant will have to demonstrate that the proposal can meet the calculated Energy Efficiency (>0.65) or R1 status as defined in Annex II of the Waste Framework Directive".

4.19 It should be noted that the proposed facility will function as an Energy Recovery (R1) operation in accordance with the Waste Framework Directive and thus complying with the extant BAT conclusions.

4.20 The Energy Efficiency formula in Annex II of the Waste Framework Directive, referred to as the R1-formula, is a well-established standard for measuring efficiency in EfW plants across Europe. This formula determines whether or not a Municipal Solid Waste Incinerator (MSWI) is a recovery operation.

4.21 In accordance with Article 3 of the Directive, 'recovery' means any operation whereby the principal result is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy.

4.22 It is subject to strict criteria in order to improve energy efficiency, displace fossil fuels, reduce greenhouse gas emissions and improve security of energy supply. Plant performance against the R1 formula is continually monitored by the regulatory authorities to ensure compliance.

4.23 To reiterate, compliance with BAT conclusions and energy efficiency calculations will be required to be demonstrated by the applicant as part of the permitting process and are not a prerequisite of securing planning permission.

4.24 PPS11 clearly supports this position. Paragraph 2.3 states:

'The pollution control regime is concerned with the control and regulation of proposed operations and processes and with their day to day operation. The objective is to ensure that the waste is disposed of or treated without endangering human health or causing harm to the environment'.

4.25 The BAT conclusions cover the control and regulation of the plant operations and are therefore of concern to the pollution control regime.

4.26 Paragraph 2.4 further states:

'The Department considers that planning control should not duplicate other statutory controls or be used to achieve objectives relating to other legislation. The Department must make its planning decisions on the basis that the pollution control regimes will be properly applied and enforced. The relevant expertise and statutory responsibility for pollution control rests with the relevant pollution control authorities'. (our emphasis)

4.27 The ES and permit application submitted to date have demonstrated to the satisfaction of statutory consultees that the proposed facility will safely operate within all environmental protection limits. The new BAT conclusions are intended to improve environmental protection and reduce environmental impacts further.

4.28 In summary, while the objection is correct to state that the EfW facility will be required to comply with the BAT conclusions for waste incineration, it is incorrect to state that this has any relevance to the planning decision for the following reasons.

1. The BAT conclusions, as part of the Industrial Emissions Directive, are implemented in Northern Ireland via the PPC permitting regime, not the planning regime.

2. A permit must be issued before the facility can operate. The decision-maker should assume that the PPC permitting regime operates effectively.

3. The effect of the BAT conclusions will be to reduce the emissions from the plant and therefore reduce the environmental impact of the development. The air quality impact assessment undertaken as part of the ES has demonstrated that the impact of the proposal

is acceptable at higher limits and therefore clearly will remain acceptable at any lower limits applied by BAT. No additional mitigation will be required to comply with reduced emission levels; this will solely require improved efficacy of the proposed abatement design.