

### Background

In March 2017, we received an application for an Environmental Permit from Gent Fairhead & Co. Limited ('the company') for the proposed Rivenhall Integrated Waste Management Facility (IWMF). The facility comprises several waste treatment technologies including a waste incineration plant burning up to 595,000 tonnes of non-hazardous refuse derived fuel per year with associated electricity generation.

### Key permitting issues

The key issues for us in the determination of this permit application were the company's method and selection of stack height, the potential impact of pollutant emissions on local air quality and the proposed management of water. The relevant legislation requires the company to demonstrate to us within its application that its proposed plant design and operating methods constitute Best Available Techniques (BAT).

### Incinerator stack height

The company's application initially provided for an incinerator design with a stack height of 55 metres above surrounding ground levels (75 metres when measured from the base). The operator subsequently increased this to 58 metres above surrounding ground levels (78 metres when measured from the base).

The stack heights for other incineration plants of similar size to Rivenhall that we have previously issued permits for are in the region of between 70 and 120 metres above surrounding ground levels. We regard this as the "indicative BAT" for plants in the UK. However, this range is only indicative as it is based on plants we have previously permitted but is not based on any specific legislation or current policy, whether national or European. There is currently no recommended or mandatory minimum stack height.

The Industrial Emissions Directive (IED) requires permit applicants to demonstrate that BAT is being applied at a particular location using appropriate design measures and taking local environmental conditions into account. The design can include additional measures for abatement and emissions reduction at source in addition to stack height selection. We normally require a cost benefit analysis from applicants to support their demonstration of BAT. Legislation and guidance requires that cost is considered as part of the assessment of BAT.

In addition to proposing a stack height of 58 metres, the company has proposed a more stringent reduction of emissions at source in order to demonstrate BAT. A tighter emission limit for nitrogen dioxide (daily average of 150 mg/Nm<sup>3</sup>) has been proposed by the company compared to the normal daily average for waste incineration plants of 200 mg/Nm<sup>3</sup> (the standard set within the IED). Hence although the stack height of the proposed incinerator is lower than that of other plants of similar or greater size for which we have issued permits, the actual environmental impact of nitrogen dioxide will in fact be one of the lowest in the country. Following an assessment of the company's cost benefit analysis, we are satisfied that the proposed stack height of 58 metres above surrounding ground levels (78 metres from the base) is BAT for the proposed plant.

### Impact on human health and local air quality

As part of our decision making process, we have thoroughly checked the air quality and human health impact modelling assessments provided within the company's permit application. We have also undertaken a rigorous sensitivity analysis of these assessments including the effect of local topography and the proximity of buildings on the dispersion of pollutants (i.e. using a range of different input parameters within the modelling). Our conclusion is that we consider the proposed facility is unlikely to contribute to any breach of the relevant air quality standards for human health and the environment.

Cont/d....

It is important to note that we reached the same conclusion as this for the company's first permit application which we refused on the basis of a stack height of 35 meters (above surrounding ground level). This means that even with a stack height of 35 meters we were satisfied that no air quality or human health thresholds would have been exceeded for the proposed incinerator. However, in addition to meeting all the required air quality and human health standards, permit applicants must also demonstrate to us how they intend to *minimise* the impact of their emissions on the environment by applying BAT. We believe that the design of the proposed incinerator is now such that pollutant emissions to air will be minimised.

A number of respondents to our recent public consultation raised concerns in relation to the health impact of fine particulates. For the proposed design and operation of the incinerator plant, we believe that emissions of particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) have been demonstrated to be insignificant. The operator proposes to use bag or fabric filters for the abatement of particulate matter. Bag filters are effective at removing at least 99.9% of all particle sizes and are widely used across Europe for controlling particulate emissions from incineration plants.

We believe that we have considered all the relevant factors, including all public consultation responses, and have reached the conclusion that the incinerator proposals will not give rise to any significant pollution of the environment or harm to human health. Our conclusion is in line with current advice from Public Health England which states "while it is not possible to rule out adverse health effects from modern, well-regulated municipal waste incinerators with complete certainty, any potential damage to the health of those living close-by is likely to be very small, if detectable". We are confident that the stringent controls imposed by UK and European legislation coupled with effective day to day regulation will safeguard human health in the locality of the facility.

#### Water management

A 'closed loop' water management system has been proposed by the company meaning there will be no discharge of any process effluents or other liquid discharges to the River Blackwater. The issued permit therefore prohibits point source emissions to any surface waters.

Part of the company's water use system will involve the abstraction of water from the River Blackwater utilising an existing abstraction licence. We understand that commissioning of the proposed waste treatment processes is unlikely to be undertaken before 2021. There will therefore be a sufficient period of time for the company to fill the proposed water storage lagoons prior to the commencement of commercial operations without prejudice to the terms of the abstraction licence. We therefore consider that there will be sufficient water for use at the proposed facility at the time of commercial operation.