Environment Agency (EA) Public Consultation on whether to issue an Environmental Permit to the Westbury incinerator proposal.

The EA public consultation is open to submissions until 22nd January. The Env. Permit considers process operational matters, i.e. how the plant operates in terms of its emissions and the standard to which those should are legally required to conform. All other considerations are planning issues and the concern of Wiltshire Council (WC). The EA has defined the difference between its responsibilities and those of WC in two documents, both attached.

The principal matters that ought to be raised with the EA are:

1. **Regulation of controlled emissions to atmosphere.** Some emissions to atmosphere e.g. CO2, are not controlled emissions i.e. there is no legal limit on the level that may be emitted. Therefore the EA has no powers to regulate CO2 emissions and cannot place a restriction on such emissions. If restrictions are thought to be appropriate, these are part of the planning process and the concern of WC planning officers e.g. see attached WC documents dated 15th and 17th December submitted to the planning officer by WC Climate Change Team.

Many other gases which are emitted are 'controlled' (require regulation by the EA) e.g. carbon monoxide, hydrogen fluoride, NOx and so forth (see full list of atmospheric emissions: ES Air Quality and Emmissions, attached). These emissions have to meet legal standards under the Industrial Emissions Directve (IED) Regulations (EU law incorporated into UK law, see https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32010L0075). These emissions will be contolled by the EA under the Env. Permit.

The legal standard governing emissions is also governed by Best Available Techniques (BAT) legislation (again an EU standard incorporated in UK law). Essentially, every potentially polluting process has to install technology approriate to enable the emission to conform to the legal standard. This technology is defined as 'best available technique' and the EA has legal powers to require the installation of this technology (Waste Incineration BAT, see https://ec.europa.eu/jrc/en/publication/eur-scientific-and-technical-research-reports/best-available-techniques-bat-reference-document-waste-incineration-industrial-emissions). If the legal standard required under the IED is met, then the EA has no legal powers to compel stricter emissions standards or for additional technology to be installed.

If the public considers that an emissions hazard exists for which there are no legal powers to constrain, then this issue transfers from the responsiblity of the Env. Permit (EA) to a responsibility held by the planning authority (WC), e.g a planning authority has a duty of care to ensure the public are safe from being harmed if a process is granted planning consent to exist and operate.

In the case of the 'controlled' (i.e. subject to regulation) atmospheric emissions from a Westbury incinerator, all these emissions are noxious in one way or another if breathed in. The one class of emission of particular concern are the dust emissions (particulate matter / PM). These are essentially made of carbon, but they are dangerous because their exterior surface will become coated with toxic elements and chemicals present in the incineration fuel (e.g. mercury, arsenic and chlorine) and released during burning or transmuted during

burning or cooling of the emission stream into new chemicals by the incineration process (e.g. dioxins and furans).

Hence exposure to breathing in toxic coated dust particles is to be avoided, and especially the very small particles (not visible to the naked eye) and known as 'ultrafine' particles. Particles (PM) are measured in microns, e.g. PM 1.0 is a particle whose diameter measures 1 micron (a micron = 1 millioneth of 1 metre). An ultrafine particle measures PM 0.1 micron (one tenth of 1 micron). Ultrafine particles are particularly dangerous to human health if breathed in because being so small they are able to enter directly into the blood stream via the blood vessels in the lung. When toxically coated, PM 0.1 particles are even more dangerous. Sustained exposure to toxic fine particles (PM 2.5 and smaller) and especially toxic ultrafine particles (PM 0.1 and smaller) will lead to pulmonary and cardiovascular diseases, and exacerbate such existing health conditions.

The IED and BAT Regulations used by the EA in issuing the Environmental Permit give the EA legal powers to require the installation of chimney filters which will remove all particles down to PM 2.5 in size. This is done by what is known as a 'bag filter'. Bag filters are very effective in removing particles down to PM 2.5 in diameter, but grow progressively inefficient in removal as the size of the particle reduces. The legal requirement under IED and BAT is to install bag filters in new incinerators.

If one wants to capture smaller sized particles, especially ultrafine particles (PM 0.1) then a different type of filter known as an 'electrostatic precipitator' (ESP filter) has to be installed. IED and BAT Regulations give the EA no legal powers to install ESP filters in new incinerators. Therefore, if fine particles below PM 2.5 micron and ultrafine particle emissions (PM 01 and smaller) are be controlled, that regulation is the responsibility of the planning authority - Wiltshire Council. To date (i.e. in all previous Westbury incinerator planning applications) WC has never sought to shoulder this planning responsibility.

Therefore in WCA members' submissions to the EA in connection with the current Westbury incinerator Env. Permit application, it is essential that the EA is asked to make clear to WC that regulation of particle emissions below PM 2.5 microns, and particularly ultrafine particles (PM 0.1), is the responsibility of the planning authority (WC).

Exposure to the Emmission Plume from the Chimney.

There are two main circumstances when people in the Westbury and surrounding area may be exposed directly to the actual emission i.e. when the emission (plume) does not rise vertically from the chimney and disperse. These are:

1. The people living on the Westbury White Horse escarpment e.g. Studland Park estate, are at the same elevation as the top of the chimney. Therefore if the plume travels horizontally rather than vertically due to local weather conditions and the wind is from a northerly direction, the people living at Studland Park will be directly exposed to the virtually undiluted emission. The question for the EA is whether Hills' Environmental Statement (ES) for WC and the EA has properly evaluated these people's exposure in terms of frequency and duration (how long for, and on how many days). There is no evidence in the Hills ES that this evaluation has been done. Therefore will the EA refuse an Env. Permit until this evaluation is done and the EA is satisfied with its conclusions?

2. When there is a 'weather inversion' (i.e. warm air lies over an band of cold air) there is the possibility that an emission released into the cold air band will not rise and disperse but rather be trapped within the cold air band and so sink onto the ground, drifting with whatever wind direction is prevailing at the time. This is known as a plume grounding event and used to happen with some frequency with the old cement words (its chimney was the same height at the incinerator's will be). When a plume grounding event occurs, people in the immediate area of the grounding will be exposed to the virtually undiluted emssion.

A 'weather inversion' is largely dictated by local weather conditions i.e. the special geographical position of Westbury alongside the escarpment may produce a weather inversion which would not occur 10 miles away. Therefore the likelihood of plume grounding events have to be determined on the basis of local meteorological data. The Hills ES model for plume grounding used weather data from Lyneham which is 20 miles away and its geography is wholly different.

Also the Hills ES plume grounding model only evaluated the occasions when the plume is actually visible (due to its water vapour component condensing thus making it visible). Hills estimated that this will only occur with around 5% of emissions during the course of the year and, on the basis of this 5% plume visibility figure, said that plume grounding would be rare. This evaluation of the likelihood of plume grounding has therefore ignored the 95% of the time when the plume is invisible, and this 95% is not assessed in the Hills ES plume grounding model.

Also, even in the case of the 5% of time when the plume is visible, the plume grounding model did not use local meteorological data to arrive at its prediction of the likelihood of the event occurring. It estmiated the frequency based on Lyneham data, and did not estimate the duration of these events or predict the location of these events.

Thus there are serious deficiencies in the Hills plume grounding model. Will the EA examine the Hills plume grounding model to see whether these dificiencies are confirmed by the EA and, if so, will the EA refuse to grant an Env. Permit until such time as the EA is satisfied with the robustness of the plume grounding model and the acceptability of its predictions?

3. Air monitoring sites. Will the monitoring of air quality and the siting of air quality monitoring stations in Westbury and the surrounding areas for the levels of substances emitted under the Environmental Permit be the legal responsibility of the Environment Agency or the planning authority (Wiltshire Council)? At present, there are no air monitporing sites proposed by Hills in its ES for the Studland Park estate. This appears to be a serious omission.

4. Will odour emissions be strictly controlled and to the satisfaction of the EA? How does the EA define what is acceptable in this regard. where will the odour monitoring sites be located. How does the EA respond to the reservations expressed by the Arla Dairy adjacent to the incinerator site, see attachments?

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