APP/EPR/636, 651 and 652

IN THE MATTER OF:

THE ENVIRONMENTAL PERMITTING REGULATIONS (ENGLAND AND WALES) 2016

An APPEAL BY FCC Recycling (UK) Limited against (636) the partial refusal of a permit variation and (651) against conditions imposed by Environment Agency Initiated Permit Variation for Mechanical Screening of Asbestos Contaminated soils at Daneshill Landfill site.

And

An APPEAL BY 3C Waste Limited against the conditions imposed by Environment Agency Initiated Permit Variation for Mechanical Screening of Asbestos Contaminated soils at Maw Green Landfill Site.

PROOF OF EVIDENCE OF

Mr Chris Lowe, Senior Air Quality Advisor & Team Leader, National Odour Team

Radioactive Substances and Installation Regulation,

Environment and Business

Environment Agency

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1. Introduction

Personal information

1.1 My name is Christopher James Lowe. I am a Senior Air Quality Advisor and Team Leader to the National Odour Team. I work within the Monitoring and Assessment department of the Environment and Business Directorate.

1.2 My work is split between responding to technical queries and supporting the development of air quality work within the Environment Agency. I also provide leadership to the National Odour Team who support Environment Agency regulatory officers and permitting officers with advice and guidance. I deliver the Environment Agency's training course on dust and particulates from waste management sites, and I chair the Environment Agency's Air Quality Coordination Group which brings together all of our air quality work into one single forum and provides strategic oversight.

1.3 I have been involved in the last review of the Environment Agency's TGN M17 - Monitoring of particulate matter in ambient air around waste facilities guidance document for 2014 (link in Appendix 1) and I am currently drafting the latest review which has yet to be published and merges the TGN M17 and TGN M8 Monitoring Ambient Air (link in Appendix 1). I also supported the production of various sector guidance document on the non-hazardous and inert waste storage sector with feedback on fugitive emissions of dust and odour.

1.4 I have held this particular post since February 2019, and I am considered technically competent and experienced by my managers to carry out my work.

1.5 I have been employed by the Environment Agency for over 20 years.

1.6 Previous to my current role I was an Environmental Permitting Regulations Installations Officer responsible for regulating large industrial processes such as landfill sites and incinerators and managing a team of staff responsible for the regulation of waste transfer sites in Hertfordshire and North London Area of the Environment Agency, with significant dust and particulate emissions.

1.7 I have worked for the Environment Agency ("the Agency") in a number of other roles, all closely related to the waste management industry, since 2001. Prior to working with the Environment Agency I was employed on a temporary contract as monitoring technician on landfill sites in the North West of England.

1.8 I hold a BSc (Hons) in Environmental Science from the University of Plymouth and I am a full member of the Chartered Institute of Wastes Management ("CIWM").

2.0 Scope and structure of proof

2.1 This proof has been prepared to assist the Inspector at the hearing in appeal reference 636, 651 and 652. In this proof, my evidence will primarily relate to the following issues air quality, in particular dust and particulate pollution from waste management sites.

2.2 My evidence will not relate to issues of day-to-day compliance or the permitting process at the Appellants site nor asbestos fibres.

3.0 The Environment Agency's role in Pollution Prevention and Air Quality Regulation.

3.1 In this section I will briefly detail the Environment Agency's role in preventing and minimising aerial emissions at waste facilities and its role in monitoring emissions of particulate matter.

3.2 <u>Pollution Prevention</u>

3.3 As a statutory waste regulator, the Environment Agency is required under paragraph 3(1)(b) of the Environmental Permitting (England and Wales) Regulations 2016 to exercise its relevant functions to implement Article 13 of the Waste Framework Directive.

3.4 The Environment Agency does this by including conditions in the environmental permits it issues which require operators to implement appropriate measures to prevent and minimise emissions from waste operations and by monitoring and enforcing those conditions.

3.5 Air Quality

3.5 Local air quality in the main, is the responsibility of the local authority. Each local authority is responsible for monitoring, assessing and if required, improving local air quality in their area. There are legal mechanisms requiring them to report on improvements to local air quality and plan improvements which are submitted to DEFRA.

3.6 National Air Quality Monitoring Networks

3.7 DEFRA has a network of monitoring locations in place across the country to assess and report on the state of air quality in the UK. This network is managed by the Environment Agency on behalf of DEFRA.

3.8 The National Air Quality Monitoring Networks are set up to assess the levels or pollutants included within the UK Air Quality Strategy. They are not designed to include every possible air pollutant or cover every part of the country. Specifically of interest to this case is that asbestos is not monitored but particulates (PM10 and PM2.5) are monitored on these networks.

3.9 Elevated levels of nitrogen dioxide and particulates are common in urban areas across the UK with the predominant sources being vehicle tailpipe emissions and other combustion sources.

3.10 Legislative Framework for Undertaking Ambient Air Monitoring

3.11 The Environment Act 1995 requires the Agency to have regard to the Air Quality Standards ("AQS") in exercising its pollution control functions. Broadly, the AQS requires that for installations specified under the Integrated Pollution, Prevention and Control ("IPPC") Directive (now included with a number of other Directives within the Industrial Emissions Directive), the Agency should base Environmental Permit conditions on the application of Best Available Techniques ("BAT") in order to meet national air quality standards.

3.12 It is a mandatory requirement of Environmental Permitting (England and Wales) Regulations 2016 that the Environment Agency ensures that no single industrial

installation or waste operation it regulates will be the sole cause of a breach of an air quality standards. The Environment Agency is also committed to ensuring that BAT and other appropriate measures are used to deliver the maximum improvements to air quality where UK exposure reduction objectives. There is no air quality standard for asbestos.

3.13 The Agency undertakes stack (or chimney) monitoring for point source emissions and ambient air monitoring for fugitive emissions to verify if any site that it regulates is contributing significantly to the breach of a national objective or is projected to do so.

3.14 If the conditions of the environmental permit do not already require it, then the Agency can vary the permit to require an operator to carry out appropriate monitoring of local air quality where necessary. Action plans can also be required from the operators of problem sites.

3.15 Using Mobile Monitoring Facilities ("MMFs")

3.16 The Agency owns a fleet of 11 mobile monitoring facilities used to conduct ambient air quality monitoring around Agency regulated sites. We also operate 2 further monitoring trailers as part of our Air Quality in Major Incident Service.

3.17 The MMFs are predominantly armoured trailers that can be towed to a location and left for several months to conduct the study. Inside the trailers is a power distribution system, weather station and a data logger. Depending on each study and the parameter(s) we wish to study, additional analytical equipment is installed in each mobile monitoring facility. The additional equipment is installed in racks, similar to a computer server room.

3.18 MMFs are used at site where we suspect that an industrial site that we regulate is causing harm to human health or pollution. As this site is not yet permitted to operate mechanical screening under an installations permit, it has not been appropriate to deploy such equipment to the site.

4.0 Waste transfer/treatment stations and generic risks of pollution as a result of emissions of dusts and particulates.

4.1 Waste management sites are known sources of particulate pollution.

4.2 This is acknowledged in the Environment conditions included in the environmental permits issued to the Appellant.

4.3 This is further supported by the Environment Agency's guidance:

- "Chemical waste: appropriate measures for permitted facilities" (Link in Appendix 1) acknowledges this in fugitive emissions to air Section 6.2 subsections 1 to 19.

- "Control and monitor emissions for your environmental permit" (Link in Appendix 1) Section "Emissions management plan for dust" outlines the sites that are expected to have dust management plans particularly keeping or treating (or both) aggregates, soils, ashes or similar materials within 500m of a sensitive receptor such as a home, school, hospital or nursing home, food preparation facility or similar.

- The risk of dust from waste site is also outlined in the Environment Agency's guidance "Non-hazardous and inert waste: appropriate measures for permitted facilities" (Link in Appendix 1)

4.4 Dust or more specifically, particulate matter can be broken down into further categories depending on their diameter. Their diameter can influence their potential to cause human health effects, so they are generally referred to as PM10 – particulate matter with an aerodynamic diameter of ten microns or less or PM2.5 which is particulate matter with an aerodynamic diameter of 2.5 microns in diameter. We also use the term Total Suspended Particulates or ("TSP") which is the total amount of all matter contained within a sample of ambient air.

4.5 Monitoring carried out by the Environment Agency in close proximity to waste management sites has indicated that PM10 can be generated in significant quantities and PM2.5 can also be generated, but in lesser quantities.

4.6 The Environment Agency's Air Quality Modelling and Assessment Unit ("AQMAU") has reviewed monitoring data collected over several years from adjacent to waste management sites and concluded that a waste site can generate up to 10 tonnes of PM10 a year if these emissions are not controlled effectively.

4.7 TSP is generated at waste transfer stations by chipping or shredding of wood and other fibrous materials. It can also be generated when other fractions of particulate matter are allowed to accumulate, and it is then disturbed by a process called secondary suspension.

4.8 It should be noted that in the monitoring report provided by the Appellant in section 3.10, asbestos fibres are noted on the concrete surface and so are at high risk of being resuspended and become airborne which has the potential to leave the site and be deposited on human receptors.

4.9 PM10 is generated from processing methods such as the crushing, grinding, screening, movement, and storage of wastes. These processes are undertaken when waste is stored or treated.

4.10 PM2.5 is generated from the crushing, grinding, screening, movement and storage of wastes but is a by-product of combustion so can also be found in the exhaust pipe emissions of vehicles delivering waste to site, generators and heavy plant and equipment such as excavators used to handle the wastes.

4.11 The health effects of particulate matter are well understood and there "*is an extensive body of evidence that long term exposure to particulate matter increases mortality and morbidity from cardiovascular and respiratory diseases.*" Ref: "Guidance Health Matters Air pollution" (link in Appendix 1)

4.12 The size of particles and the duration of exposure are key determinants of potential adverse health effects. Particles larger than PM10 are mainly deposited in the nose or throat, whereas particles smaller than PM10 pose the greatest risk because they can be drawn deeper into the lung. The strongest evidence for effects on human health is associated with PM2.5.

4.13 Smaller particles such as PM2.5 behave much more like a gas and can travel much greater distances than course particulates like PM10.

5.0 Asbestos Fibres and Particulates

5.1 Asbestos fibres (depending on their shape) are generally acknowledged to range from 0.1 to 10 micrograms and so would form part of the PM2.5 and PM10 categories of particulate pollution. In my experience and looking at the information provided by the Appellant, I

believe that PM10 and PM2.5 would be generated by the site, has the potential to escape beyond the site boundary and onto local human receptors.

5.2 Asbestos particulates are not routinely monitored by the Environment Agency as we expect to see the loads of asbestos contaminated material segregated, isolated and disposed to a stable non-reactive cell at a non-hazardous landfill site which it is "entombed" with similar non-reactive wastes.

5.3 The aim is always to prevent their escape in the first place, rather than monitoring after asbestos has escaped the operator's control as this is too late to effectively remediate it. It is effectively counting the horses after they have bolted. This precautionary approach to contain asbestos emissions appears to have been applied in the permit variations under appeal.

5.4 As a result, the M17 guidance and its anticipated revisions do not really cover asbestos monitoring and instead leans heavily on the occupational health monitoring techniques which are not really designed for monitoring in large open spaces or deal with metrological issues effectively.

5.5 Public Health England "PHE"(now known as the United Kingdom Health Security Agency or "UKHSA") issued general health information about asbestos which was updated in July 2017. The guidance "Asbestos: General information" is hosted on gov.uk website makes clear that asbestos is classified as carcinogenic to humans (Link in Appendix 1)

5.6 The PHE guidance goes on to state that; "*People may come into contact with asbestos from existing asbestos-containing materials in buildings and products. If they are intact, they pose very little risk. However, if asbestos containing products are damaged in some way, fibres may be released.*" It is my experience that processing such as mechanical handling of waste materials such as by excavators, screeners, loading shovels and even basic manual handling, does cause particulates to be generated.

5.7 It therefore follows that if asbestos contaminated materials are subjected to these processes, asbestos fibres have the potential to be released and escape into the atmosphere. Once this happens, they may be inhaled by humans and animals on site and beyond the site boundary.

5.8 In my experience, the Environment Agency conducts particulate monitoring around industrial and waste sites with the monitoring equipment located between 0m to 700m from the site boundary as we have noted that PM10 tends to “drop out” and accumulate on surfaces around those distances. This does not take account of subsequent resuspension of the dust due to traffic or other activities.

5.9 The applicant monitoring does not demonstrate they have considered the potential for monitoring within this distance or beyond the site boundary. The monitoring distance for Maw Green is stated to be 100 metre far source (Section 3.8 page 39 Daneshill and Maw Green STF Permit Appeals Provectus STF Factual Monitoring Data document) (see Appendix 1). The monitoring distance for Edwin Richards in within the building. We would expect that asbestos fibres, based on their size, would travel well beyond this distance.

5.10 Maw Green site is located 300m - 400m from receptors (see site location plan in Appendix 2) Daneshill site is located 100m – 200m from receptors (see site location plan in Appendix 3). Again, we would expect that asbestos fibres, based on their size, would travel well beyond this distance.

6.0 Conclusion and endorsement

6.1 Based on my experience, I consider that the Appellant has not provided sufficient information to provide confidence that their air monitoring’s reliability, extent and context demonstrates conclusively that there is no risk posed from particulate pollution as the site stand and therefore in turn asbestos fibres as result of processing Asbestos containing soils.

6.2 I would suggest that further processing trials are undertaken with a scope agreed with the Environment Agency to produce a robust set of results to determine the risk posed.

Signed: CJ Lowe

Dated: 28.02.2024

Name: Christopher James Lowe

Environment Agency

Appendix 1

Appended document and Web links

a) Daneshill and Maw Green STF Permit Appeals Provectus STF Factual Monitoring Data document

b) Chemical waste: appropriate measures for permitted facilities https://www.gov.uk/guidance/chemical-waste-appropriate-measures-for-permitted-facilities/6-emissions-control-appropriate-measures)

c) Control and monitor emissions for your environmental permit https://www.gov.uk/guidance/control-and-monitor-emissions-for-your-environmental-permit#dust-mud-and-litter

d) Non-hazardous and inert waste: appropriate measures for permitted facilities https://www.gov.uk/guidance/non-hazardous-and-inert-waste-appropriate-measures-for-permitted-facilities/6-emissions-control

e) Asbestos General Information https://www.gov.uk/government/publications/asbestos-properties-incident-management-and-toxicology/asbestos-general-information)

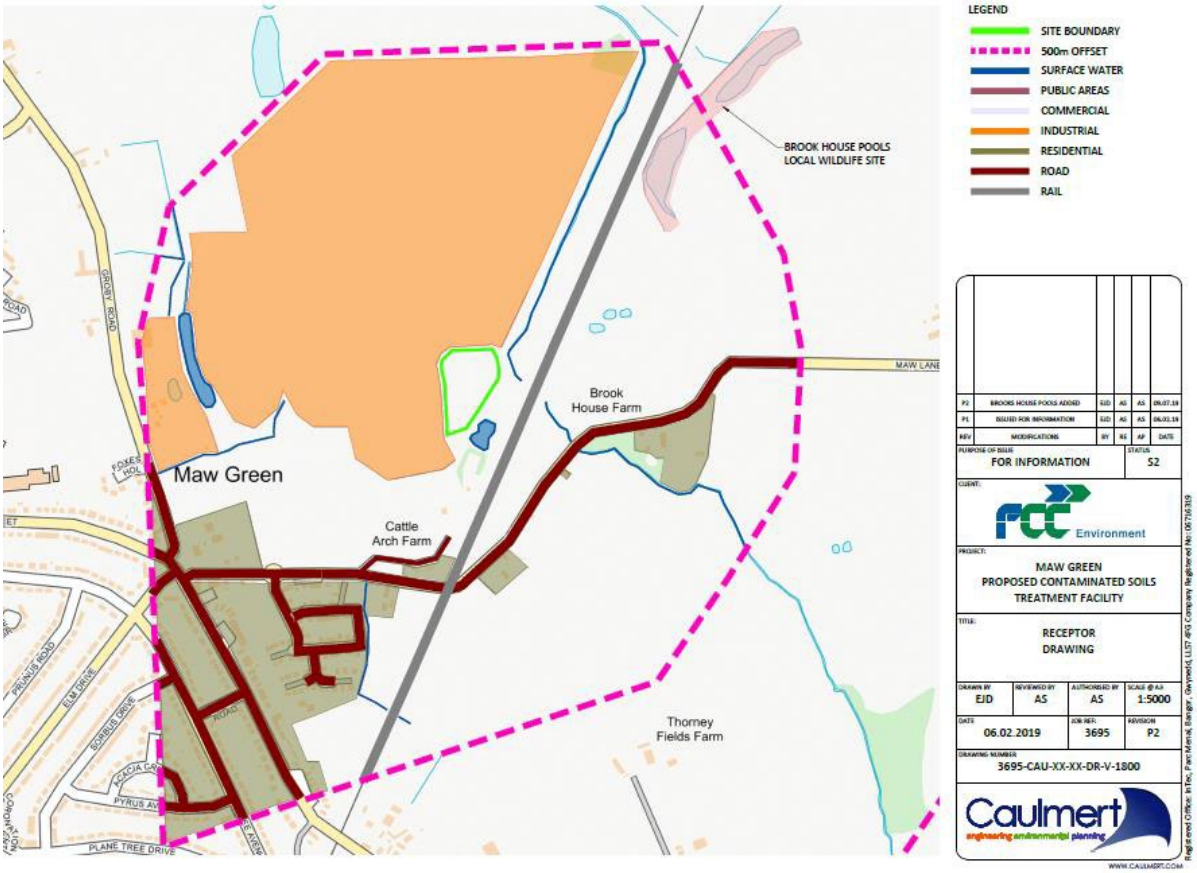
f) Guidance Health Matters Air Pollution https://www.gov.uk/government/publications/health-matters-air-pollution/health-matters-air-pollution#:~:text=matters%2Dair%2Dpollution,Summary,leading%20to%20reduced%20life%20expectancy.)

g) Technical Guidance Note (Monitoring) M17 Monitoring Particulate Matter in Ambient Air around Waste Facilities (https://www.gov.uk/government/publications/m17-monitoring-of-particulate-matter-in-ambient-air-around-waste-facilities)

h) Technical Guidance Note (Monitoring) M8 Monitoring Ambient Air (https://www.gov.uk/government/publications/m8-monitoring-ambient-air

Appendix 2 – Maw Green site location and receptors

Grid reference SJ7185057395



Appendix 3 – Daneshill site location and receptors

Grid reference: SK6758986716