Matthew Stoaling

AIR QUALITY

CD6/4/A

Appeal A: APP/EPR/636: Daneshill Soil Treatment Facility

Appeal B: APP/EPR/651: Daneshill Soil Treatment Facility

Appeal C: APP/EPR/652: Maw Green Landfill Site

SUMMARY Proof of Evidence by Mr Matthew Stoaling

BSc (Hons), MSc, FIAQM, MIEnvSci, CEnv

FOR FCC Recycling (UK) Ltd and 3C Waste Ltd

February 2024 (v1)

Isopleth Ltd.
Registered in England and Wales No. 9150373

CONTENTS

1.0 INTRODUCTION

Qualifications and Experience

1.1 My name is Matthew Stoaling. I am the founder of Isopleth Ltd, an independent air quality consultancy. I have detailed my qualifications and experience in full in my main PoE.

1.2 In June 2023 I was formally appointed by the appellents to give air quality evidence at the inquiry in relation to the Environmental Permitting appeal for the Daneshill Soil Treatment Facility (STF). My instruction was subsequently expanded to encompass the 3 Environmental Permitting appeals relevant to the two STFs (Daneshill STF and Maw Green STF).

1.3 I have visited the both sites and surrounding areas, in addition to an operational STF site at Edwin Richard Quarry (Rowley Regis).

Scope of Evidence

1.4 My evidence describes the potential for air quality impacts from the STFs on potentially sensitive receptors in the event that asbestos fibres were to be released in significant numbers, which the appellant contends they will not. Specifically this relates to the effect of atmospheric dispersion (i.e. 'pathway') at each site. Discussion of the potential for asbestos release is a topic covered by Dr Simon Cole (**CD6/1/B**).

1.5 In particular, I have quantitatively assessed the potential site specific dispersion factors (DFs) at each of the STFs which may then be used to assess the risk of any impacts in the event that asbestos fibres were to be released.

1.6 The scope of my evidence also includes my responses to concerns raised by 3rd parties in relation to the Daneshill STF. There have been no concerns raised by 3rd parties in relation to the Maw Green STF.

2.0 ASSESSMENT APPROACH

2.1 I have detailed my assessment approach in my main PoE. In summary, the Environment Agency has published web-based Guidance for the assessment of risk to air, water and soil from sites subject to Environmental Permitting. This guidance provides standard DFs. DFs are mathematical factors of dispersion / dilution which take into account the emission release rate (RR) from the source, basic information relating to the source (such as release height and area) and the averaging time over which the pollutant is released.

2.2 The standard web-based DFs are a rough tool for impacts screening. More accurate DFs may be obtained using detailed dispersion modelling, which I have used in this case.

2.3 Detailed dispersion modelling can be used for (very) small particles and the EA accepts the use of modelling for these (PM_{10} and $PM_{2.5}$, for example). Peer reviewed and published research is available which demonstrates that dispersion models (such as ADMS or AERMOD) are effective tools for releases of asbestos fibres and have found a good relationship between modelled and monitored concentrations.

2.4 The dispersion modelling results are presented as a DF for each averaging period (annual, 24 hour and 1 hour). The results are therefore independent of any baseline levels of dust or particulate (and asbestos, as discussed in the Evidence of Dr Simon Cole **CD6/1**).

2.5 Dispersion models do not take into account particle re-suspension. Particle resuspension is the re-entrainment of particles initially at rest on the ground into the air flow. This will occur when the 'friction velocity' at the surface of the particle exceeds a 'critical velocity' (also called threshold or pick-up velocity).

2.6 The critical velocity depends on a number of parameters and I have detailed these in my main PoE. Very specific conditions would need to occur for resuspension of asbestos particles to occur, including all of the following management controls:

i. Dry conditions;
ii. Absence of significant vegetation which would operate as a barrier; and
iii. Sufficiently high wind speeds.

Dispersion Modelling

2.7 I have used the BREEZE AERMOD Pro v11.0.0.7 dispersion model for the calculation of DFs at both sites. This dispersion model is accepted for use by the EA.

2.8 The same general source term has been used for the calculation of DFs at both sites. This is a theoretical dispersion modelling exercise only, FCC remains of the view that the measures in place at the proposed site will prevent the release of 'significant' quantities of asbestos to air.

2.9 By comparing these emissions with the results at each receptor, site specific DFs (short term and long term) have been calculated.

3.0 RESULTS

3.1 A site specific (theoretical) DF has been calculated for each averaging time for each of the STF sites. A full description of model inputs is provided in my main PoE.

Results: Daneshill

3.2 The annual average DFs are very large even at the STF boundary locations, at above 10,000. In simple terms this means that the releases from the modelled area sources

would be diluted by a factor of >10,000 at the boundary location when averaged over the year.

3.3 The 24-hour DFs are very large even at the STF boundary locations, at above 1,000 for all sources. The factor is above 5,000 at the modelled receptor locations. In simple terms this means that the releases from the three modelled area sources would be diluted by a factor of >5,000 at the receptor locations when averaged over the year.

3.4 The 1-hour maximum DFs for all sources is above 800 at the modelled receptor locations. In simple terms this means that the releases from the three modelled area sources would be diluted by a factor of >800 at the receptor locations for the highest modelled hour in the 5 year data set.

Results: Maw Green

3.5 The annual average DFs are very large even at the STF boundary locations, at above 9,000. They are above 50,000 at the closest residences, the new housing on Maw Green Road.

3.6 The 24-hour DFs for all sources are above 3,000 at the closest residences, the new housing on Maw Green Road.

3.7 The 1-hour maximum DFs for all sources are above 1,000 at the closest residences, the new housing on Maw Green Road. The DFs are above 500 for the sources individually.

4.0 3RD PARTY COMMENTS

4.1 I have addressed 3rd party comments relating to dispersion in my main PoE. In summary, there have been no specific points raised in the 3rd party representations that were either not addressed at the application stage (including further submissions) however I have provided further information in this PoE as has Dr Simon Cole in his submissions (**CD6/1**) in order to provide further context and reassurance.

4.2 There is no evidence to suggest that there will be significant asbestos emissions from the site, and even were this the case the DFs are very large meaning that they would be highly unlikely to have any effect at offsite locations where humans are likely to be present.

5.0 CONCLUSIONS

5.1 My evidence describes the potential for air quality impacts from the Daneshill STF and Maw Green STF on potentially sensitive receptors in the event that asbestos fibres were to be released in significant numbers, which the appellant contends they will not. Specifically I present site specific long and short term DFs, obtained through detailed dispersion modelling. Discussion of the potential for asbestos release is a topic covered by Mr Simon Cole (**CD6/1**).

5.2 My work shows that, even were this the case, the dispersion factors are very large (for both sites) meaning that they would be highly unlikely to have any effect at locations where humans are likely to be present.

5.3 As such I disagree with the EA that there is significant risk of asbestos exposure from the operation of the Daneshill STF and Maw Green STF as proposed by the operators.

The evidence which I have prepared and provide in this PoE is true and has been prepared and is given in accordance with the guidance of my professional institution and I confirm that the opinions expressed are my true and professional opinions.

Isopleth Ltd
Ulverston,
53 Englishcombe Lane,
Bath
BA2 2EE
www.isopleth.co.uk

Registered in England and Wales No. 9150373