



PROPOSED BIOMASS FUELLED POWER PLANT

LAND OFF BALLYVANNON ROAD, NEAR GLENAVY

COUNTY ANTRIM

ODOUR AND DUST

REGULATION 15 RESPONSE

OUR REF: 05/2332/C/W

MAY 2009

the
GRAHAM BOLTON PLANNING
partnership limited

Odour and Air Quality

Response to Issues raised by Lisburn CC and Antrim BC

1. The responses of the consultees, from Lisburn City Council dated 22 September, 2008, and Antrim Borough Council in their undated letter received by The Planning Service on 20 November, 2008, acknowledge that the proposed Rose Energy bio-mass power generating plant will be required to be licensed under Integrated Pollution Prevention and Control. The regulator for an IPPC Permit is the Northern Ireland Environment Agency to whom an application will be made in due course. In applying for a Permit, the operator will have to demonstrate that the proposed plant represents in all respects Best Available Techniques, together with a management competence to ensure compliance and maintenance of the strict environmental emission standards laid down in law and also in conditions which will be attached to the IPPC Permit. Only once the Regulator is satisfied as to these elements can a Permit can be issued. Subsequently not only will the operator be required to continually monitor the process and activity but so will the Regulator, NIEA, to ensure compliance with those emission standards. Those standards will include conditions relating, amongst others, to odour, dust, emissions from the chimney and noise. Issues arising from the Noise Impact Report, prepared by F R Mark and Associates, are the subject of a separate response prepared by that consultancy.
2. A meeting was held on 5 November, 2008, with representatives of Lisburn City Council and Antrim Borough Council together with representatives of F R Mark and Associates, Rose Energy Ltd and The Graham Bolton Planning Partnership Ltd. A further meeting was held on 10 December, 2008, with representatives of Lisburn CC and on 18 December with representative of Antrim BC. The primary matters discussed at both meetings concerned the Noise Report produced by F R Mark and Associates. At the first meeting reference was also made to potential odour impacts and also the possibility of cumulative

odour impacts having regard to the proximity of the Ulster Farm By-Products (UFBP) animal by-products rendering plant off Ballyvannon Road, Glenavy.

Odour

3. The issues raised by the respective Councils are similar in respect of odour; in addition to the comments made at the meeting referred to above, the representatives of the respective Councils have further commented on a draft version of this report, or asked for clarification, which has now been amended to answer those further comments/requests for clarification.

Planned and Unplanned Shutdowns

4. Under the IPPC Permit, there will be a need for a detailed operational strategy which will include a full Odour Management Plan and Accident Management Plan, housekeeping procedures and maintenance strategy which will, amongst other things, cover the formal fuel management plan to cover shutdown and breakdown situations.
5. As referred to in the odour report prepared by Engreen Environmental Consultants, which forms part of the submitted Environmental Statement, air within the fuel reception area will be extracted to the boiler thus ensuring that the fuel reception area is maintained under slight negative pressure. There will be planned maintenance periods which will be routinely scheduled. During such periods and also during unplanned shutdowns air will continue to be extracted from the fuel reception area to a standby generator of appropriate size to ensure that air from the reception hall is extracted, thus maintaining the slight negative pressure and controlling potential fugitive emissions.

6. In addition for planned shutdown periods, acceptance and storage of the fuel – poultry bedding and meat and bone meal – will be rundown, thus reducing the amount of material within the storage bins or silo, with the reception of the fuels being recommenced two days or so before planned full operation of the boiler and power generation. Prior to full operation of the boiler it has to be heated and during that period air will be extracted in the normal way into the boiler, thus again maintaining the slight negative pressure within the fuel reception area and preventing odorous emissions from this area.

Fugitive Emissions

7. As noted in the Engreen report on Odour, the operator will be adopting, and required to adopt under the IPPC Permit, a high level of housekeeping to ensure that the building structure is tight, so as to minimise potential fugitive emissions. As noted in the preceding section, for planned stoppages fuel stocks will be run down thus reducing further the potential for fugitive emissions.
8. The design and operational features are such that there is no real expectation of fugitive odour emissions. If fugitive emissions do occur then it is because there is a problem with the control measures; possible odours from the transportation of poultry bedding are referred to below, and the reference here to fugitive emissions concerns only those from the power plant facility itself in the reception, storage, handling and use of the fuel materials. It is not realistic to attempt to model events of this nature with dispersion calculations since there would be potentially massive inaccuracies in the estimated release rate and the locations and in the timing of the release compared to the overall modelled emissions and metrological events. Application of Best Available Technique (BAT) in consultation with the PPC Permit regulator (NIEA) is designed to eliminate fugitive emissions primarily by containment of all potentially odorous materials and in their handling and use as fuels, which the engineering design of the plant is intended to do. The regulator via the use of conditions within a Permit and enforcement of BAT,

which is an improving standard as techniques and equipment advance, has the powers to ensure that no odours are released which extend beyond the boundary.

9. Dispersion modelling is a useful assessment tool where the pollutant concentration and gas flow rates are known and is accepted best practice. However, it is considered that dispersion modelling of fugitive releases from the process buildings would be misdirected as the results would be entirely dependent on unproven and unverifiable assumptions and do not provide helpful information on what level of fugitive emission might be acceptable. Our approach is therefore to ensure that there are appropriate and robust engineering and management measures in place to prevent or minimise the release of fugitive odours.
10. The transfer and delivery of fuel is by its nature a transitory interlude and exposure of the fuel to air will only take place within the fuel reception building and behind closed doors with air being extracted. Meat and bone meal will be transferred into an enclosed silo.
11. Consequently, it is considered that fugitive emissions from the MBM silo and conveyors, both of which will be contained, the “material recovery facility” which is also contained and will be maintained under slight negative pressure, and the short-term wait of HGVs within the site are considered to be insignificant; the effluent plant referred to is for treatment of domestic effluent and will be of a proprietary type designed not to emit malodours. There is water used in the generating and cooling process which will be treated before disposal but this is not odorous.

Transport of Fuel

12. As noted above, MBM is not an offensively odorous material. However, it will be delivered in tight sheeted covered lorries from the adjoining animal by-product rendering plant of UFBP. Similarly, poultry bedding will be delivered in tight sheeted covered

lorries or within enclosed container lorries. Delivered fuel will only be exposed, with sheet covers removed, when vehicles are within the extracted fuel reception area and the doors have been closed. Vehicles will move into the fuel reception area on arrival at the plant. In the event of the reception bay being fully occupied – there is room for two it is expected that delivery vehicles will not have to wait more than 10 minutes, which is the amount of time for a delivery vehicle to back into the delivery bay, offload fuel behind closed doors and move out of the delivery bay.

13. By way of comparison it is worth noting that animal by-products, considered to be a highly offensive odorous material, are transported within leakproof and tightly sheeted lorries, with the sheeting only being removed when the delivery vehicles have passed through an airlock to a reception area. The transport and delivery of animal by-products in this fashion is deemed to represent Best Available Technique and meets legislative requirements under the Animal By-products Regulations. Neither meat and bone meal nor poultry bedding can be compared to highly offensive animal by-products. The transportation and delivery of fuel to the plant as described and proposed is appropriate. Furthermore, there will be a relatively small number of fuel deliveries in any one day, calculated to be 35 vehicles delivering fuel over a reception time period of 12 hours (7am to 7pm) with reduced numbers during the shorter reception period on a Saturday morning.

Cumulative Impact

14. Odours with different characteristics cannot be combined, and an assessment of “cumulative impact” undertaken. Odours of different characteristics will hide other odours, which is a feature evidenced in the rendering Process Guidance Note, SG8, in respect of the banning of “masking agents”. Additionally, the Environment Agency has reviewed various substances and materials and their degree of offensive odour or pleasant smell. They have ascribed a comparative “hedonic tone” to these materials and

substances. In Technical Guidance Note draft IPPC H4, Horizontal Guidance for Odour, putrescent animal waste is considered to be highly offensive with an hedonic tone of -3.75/-3.74 while faeces has a lower hedonic tone of -3.36¹; the poultry bedding fuel to be used by Rose Energy is not simply litter but a mixed material of litter and bedding (wood shavings) and does not have the same degree of malodour as faeces alone. The “most offensive” odours are stated to come from processes and activities involving putrescible waste and animal and fish remains while intensive livestock rearing are put in a “medium” category of odour offensiveness with suggested indicative odour criterion limits (in terms of European Odour Units) of twice the level for the most offensive odours.²

15. The issue of possible malodours emitted from the adjoining Ulster Farm By-Products plant is not a matter for Rose Energy. UFBP is a Permitted activity subject to conditions regulated by NIEA. The IPPC Permit for that plant includes an odour boundary condition and in the event of breaches of that condition the NIEA has powers to take the appropriate action. It is understood, however, that UFBP are seeking to resolve residual problems and have applied for planning permission for a taller chimney to aid dispersion of residual odours.
16. The proposed Rose Energy plant will also be Permitted and it is expected that the Permit will include an odour boundary condition, precluding the release of offensive odours beyond the boundary. The Air Quality Report, prepared by The Airshed, has undertaken a robust modelling exercise which assumes that despite the extracted air passing through the boiler, and thus being subject to high temperature incineration, that an organic

¹ Appendix 10, IPPC H4, Horizontal Guidance for Odour: Environment Agency, Environment and Heritage Service (now NIEA) and SEPA, October 2002 – though recently withdrawn in England and Wales, this document remains as formal guidance within Northern Ireland

² Appendix 6, IPPC H4, Horizontal Guidance for Odour: Environment Agency, Environment and Heritage Service (now NIEA) and SEPA, October 2002

fraction is released in exhaust gases. Even so, the modelled worst case odour from stack emitted gases in that robust assessment would be unlikely to cause significant loss of amenity.

17. Finally in respect of potential cumulative effects of odour, it must be assumed that the IPPC regime will work effectively. Unlike a rendering plant where both the raw materials and the treatment processes and resulting effluent can be highly offensive, that is not so with the proposed Rose Energy power plant where the risk of odour is associated with the raw material reception and storage, and not the process itself.

Residual Risks

18. The Engreen Odour Report does not ascribe residual risks to each control element. The residual risk is the risk taking account of the cumulative effect of all the risk management measures – the IPPC guidance on rendering and odour (SG8) recognises that odour control is the cumulative effect of many integrated measures. The table within the Engreen Report ascribes a probability value to all five categories of odour impact to reflect the fact that in reality there are likely to be more incidents of low impact odour, than of high impact odour. This allows assessment to ensure that all possibilities have been considered and to determine that even the maximum risk value is low.
19. The residual risks ascribed in the report are based on a professional estimate of likely odour releases and are based on experiences at rendering, waste food facilities, abattoirs and mushroom compost production which all face similar requirements to control odours.

Air Quality

20. It is noted that the comments from both local authorities recognise that the NIEA will address the environmental impact from the pollutants in emissions within the IPPC regime. It should be noted that while the advanced air dispersion model ADMS 4.0.3. was utilised, other models, including Airmod, were also employed to assist in assessing that the proposals, and particularly the height of the proposed chimney, are acceptable.

Dust

21. It is correct that the report produced by Engreen Environmental Consultants Ltd on the “Control of Dust Emissions” does not undertake a quantitative assessment, though an assessment of the PM₁₀ constituent of flue gases is included in the Air Quality Report prepared by The Airshed. The report was prepared having regard to available guidance and demonstrates how the measures to be adopted at the plant are in line with published guidance on controlling dust emissions. Such measures will include suppression of dust outside the materials reception building around the delivery yard and all areas that vehicles visit.
22. The bio-mass fuels for the power plant, poultry bedding and meat and bone meal, are not inherently dusty in the state and at the time that those materials will be delivered to the plant. It is expected that the poultry bedding will have a moisture content in excess of 35% while MBM only becomes potentially dusty when it is ground down. In any event both materials will be delivered in leakproof and tightly sheeted HGVs.
23. The system for extracting ash from flue gases is wholly contained with the resulting collected ash being stored in silos prior to despatch. Ash will be despatched from the proposed power plant in purpose designed vehicles with a discharge mechanism from the silos into those vehicles which will prevent emissions of dust.

Conclusion

24. While the concerns regarding odour are understood, the operation of a power generating plant is not of itself inherently odorous and the area of potential concern relates to the transport to the site of the bio-mass fuel, notably poultry bedding, and its reception and storage. Transport of fuel will be to best practice and the plant has been designed to retain odours and treat them by extracting air from the reception building and combusting that air within the boiler. Dedicated plant will be in place to maintain extraction of air during periods of both planned and unplanned shutdown. Additionally, it should be noted that there will be a high level of regulatory control which will include an odour boundary condition on an IPPC Permit.
25. In respect of air quality and dust emissions, both these matters will be subject to control under an IPPC Permit. It is noted that the submitted Air Quality report concludes that there should be no adverse impact resulting from emissions from the chimney to the proposed plant while the nature of a power plant and its operation does not involve the use of inherently dusty materials apart from residual ash for which specific controls and equipment will be in place.

**The Graham Bolton Planning Partnership Ltd
Assisted by Engreen Environmental Consultants Ltd
and The Airshed**

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