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The Association of Manufacturers of Domestic Appliances

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Dear Ms Devlin

CONSULTATION PAPER ON THE INTRODUCTION OF RESTRICTIONS ON THE LANDFILLING OF FOODWASTE

AMDEA is the UK trade association for large and small domestic appliances: heating; water heating; floor care and ventilation. We represent manufacturers at UK, European and International level; with government and EU political institutions; in standards and approvals; with non-governmental organisations; with consumers and in the media. AMDEA protects and promotes its members' interests in all these spheres.

All of our members are fully committed to waste prevention and encouraging recycling but we have some member companies with a particular interest in food waste management and restricting the landfilling of food waste, as they manufacture domestic food waste disposers (FWDs). The members of our FWD Group include the world's leading producer that has manufactured food waste disposers for over 70 years and markets these appliances in over 80 countries. As food waste and sewer management are core issues for this group, we have accumulated a formidable evidence base of scientific research conducted by recognised experts and academics.

On behalf of these members, we welcome this opportunity to share this scientific knowledge and practical experience, as we are deeply concerned that statements repeated in both the DOENI Regulatory Impact Assessment and the Consultation Paper relating to food waste disposers contradict robust, peer-reviewed, scientific evidence. These serious misapprehensions threaten to flaw gravely DOENI policy and limit its future ambitions. Regrettably the statements published reflect a position which the Environment Agency retracted in November 2010, on consideration of the substantive body of evidence which we would also like to make available to the DOENI.

Since 2010 the evidence has continued to grow with recent studies published from countries at the forefront of sound environmental management, such as Denmark and Sweden. In England, in November 2012 the Local Government Association embarked on a programme of pilot studies

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installing food waste disposers in new-build properties, to deepen the proven knowledge base[1]. The Republic of Ireland has recently reversed a ban on domestic food waste disposers.

Even countries that have long experience in separate collections are experiencing barriers to further achievement. Despite a highly disciplined and environmentally aware population there is a significant proportion of the German population who cannot or does not effectively separate their food waste. According to a very recent German report, "Ecologically Sustainable Recovery of Biowaste," published in July 2013 by the German Federal Environment Ministry, only 67.5 million of the German population have separate collection services and of these 56% do not use the facility. This means 44 million or half of the German population do not have or use a separate food waste collection facility. Germany aspires to separate collection of food waste for treatment at AD centres and is committed "in principle" to establish closed loop recycling by 2015. However it is much further from achieving this target than might be supposed.

Denmark implemented its ban on food waste to landfill over 16 years ago. Denmark has moved away from separate collection of food waste for processing at centralised AD facilities because of the problem of physical contaminants and because it had extensive incineration capacity connected to district heating. However, the net calorific value of food waste is low because of the high water content. It is now re-evaluating the use of FWD as a means of increasing biogas production by delivering substrate free of physical contaminants to its wastewater treatment works and AD, this will reduce its dependency on coal for baseload generation. Measures to restrict the use of FWD in Northern Ireland would be out of step with informed contemporary practices in other jurisdictions. Article 2f of the proposed regulation for Northern Ireland represents a de facto ban on FWDs.

Summary of Key Points

- Food waste disposers provide a sustainable means of effectively diverting food waste from landfill and do not contravene the Waste Hierarchy (as suggested on page 3 of the RIA).

- Food waste disposers grind practically all food waste to minute particles (98% are less than 2mm) that are easily carried in the wastewater collection system[2]. They do not increase the risk of sewer blockage[3] (as suggested on page 13 of the RIA).

- Ground food waste is 70% water, its specific gravity is similar to faecal waste, which the sewers are designed to transport. A study from the New York City Department of Environmental Protection concluded that the impact of FWDs on the sewer system was insignificant.[4]

[1] http://www.local.gov.uk/web/guest/productivity/-/journal_content/56/10171/3510540/ARTICLE-TEMPLATE

[2] Kegebein, J.; Hoffman, E. and Herman H. Hahn (2001) Co-Transport and Co-Reuse. An Alternative to Separate Bio-Waste Collection? Wasser-Abwasser GWF 142 (2001) Nr. 6 429-434

[3] Mattsson, J. and Hedström, A. (2011) The incompatibility of food waste disposers with an aging sewer – Fact or Fiction? 12th Nordic Wastewater Conference, Helsinki

[4] New York City, DEP (1997), The impact of food waste disposers in combined sewer areas of New York City. cit.op.

- Food waste disposers deter rodents and vermin as food waste is not stored for street collection. Without leaving the kitchen, finely ground waste goes directly to the sewer. Rats do live in sewers but FWDs do not increase rat infestations (RIA page 13). As concluded most recently by a Danish study[5] "…finely ground kitchen waste will have little impact on the sewer rats' general health and will not result in a significant increase in their population."

- The suggestion that ground food waste increases the risk of odours in the sewers is spurious and unproven (RIA page 13). It is certainly not the experience of Surahammar in Sweden where domestic FWD use increased from 0% of households to more than 50% of households in a period of about 10 years[6]. Odours are a far greater risk, along with proliferation of bacteria and pathogens, where food waste is stored for kerbside collection.

- Food waste disposers are not used to dispose of sanitary or hygiene products (RIA page 13). Such products would not pass through the exit apertures in the FWD grind chamber. Clinical macerators are an entirely different category of product employing different technology.

- FWDs do capture many typical food waste contaminants that have proved damaging to AD plants such as plastic wrappings and bags. These remain in the FWD grind chamber.

- Food waste is a significant contaminant of dry recyclables and research in Japan has found that removing food waste at source unlocks the potential for recycling other fractions.[7]

- The subject of additional potable water consumption when FWDs are installed is equivocal. Some field measurements have found consumption decreases[8] [9]. No field study has measured large increases but some have reported a small increase; a cautious/precautionary conclusion would be that water and energy consumption is trivial[10], (contrary to RIA page 13). At most, water use is 6 litres per day per household,

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[5] [5] Clauson-Kaas,J. and Kirkeby J. COWI (August 2011) Food waste disposers: energy, environmental and operational consequences of household residential use

[6] Per Andersson, Surahammars KommunalTeknik AB, persdonal communication 2013

[7] Yang, X.; Okashiro, T.; Kuniyasu, K. and Ohmori, H. (2010) Impact of food waste disposers on the generation rate and characteristics of municipal solid waste. J. Mater. Cycles Waste Manag. 12:17-24

[8] DeOreo, W.B.; Mayer, P.W.; Martien, L.; Hayden, M.; Funk, A.; Kramer-Duffield, M.; Davis, R.; Henderson, J.; Raucher, R.; Gleick, P.; and Heberger, M. (2011) California Single-Family Water Use Efficiency Study. Report for California Department of Water Resources. Aquacraft, Inc. Water Engineering and Management

[9] Koning, J. de and Graaf, J.H.J.M. van der (1996) Kitchen food waste disposers, effects on sewer system and wastewater treatment. Technical University Delft.

[10] Defra Market Transformation Programme, 18/02/2008,Briefing Note BNXS43 Food waste disposers an overview

which is approximately the equivalent of one extra toilet flush. While the electricity used is just 3-4 kWh per year.

- The municipality of Surahammar in Sweden is the largest catchment wide, monitored study of FWD[11]. In 1997 the municipality introduced new waste collection charges and one of the options was to lease a FWD from the municipality. By 2008 FWD installation had changed from 0% to 50% of households. The municipality drains to a conventional WwTW, which systematically monitors its influent with 4-weekly 24-hour composite samples. The average flow, and loads of BOD, COD, nitrogen and ammonia have all decreased but change has not been not statistically significant at 95% confidence, however the biogas has increased by 46% (99% confidence). When FWD installation had reached 30% it was reported that electricity consumption by the activates sludge plant had not increased, i.e. confirming no change in load. There has been no additional impedance to sewer flows, no increase in sewer corrosion or odour, no increase in sewer rat population and no difficulties in operating the WwTW. This full-scale, catchment-wide, systematically monitored experience is the clearest proof that the fears mentioned on page 13 of the RIA are groundless. The municipality is entirely happy with the decision it took in 1997 and its example has been accepted by other cities including Stockholm.

- Normal foul sewage is "weak", which means that it has insufficient carbon relative to the nitrogen and phosphorus it contains. This means that very often supplemental carbon has to be purchased to feed biological nutrient removal, alternative iron or aluminium salts have to be purchased to precipitate phosphate. Ground food waste has a much higher ratio of carbon to nutrients and aids biological nutrient removal both at the WwTW[12] and by in-sewer bio-transformations[13].

- Fats oils and greases (FOG)are serious problems for sewers but they are entirely separate from FWD. The City of Westminster in London has banned commercial FWD for years and yet the quantity of FOG in its sewers is legendary. A Water Environment Research Foundation (WERF) study of FOG examined samples from all around the USA. It is the largest study of FOG to date. The WERF researchers say they did not see (by microscope examination) evidence of FWD output in FOGc samples[14]. It has been corroborated with samples from sewers in UK[15]. Authors of the WERF study have gone

[11] Evans, T.D.: Andersson, P.: Wievegg, A.: Carlsson, I. (2010) Surahammar – a case study of the impacts of installing food waste disposers in fifty percent of households. Water Environ. J. **241** 309-319

[12] Battistoni, P.; Fatone, F.; Passacantando, D.; Bolzonella, D. (2007) Application of food waste disposers and alternate cycles process in small-decentralized towns: A case study. Water Research 41 893 – 903

[13] Evans, T.D.; Sandell, M. Andersson, P. and Wievegg Å. (2013) Field-based quantification of the power of in-sewer treatment. 7th International Conference on Sewer Processes & Networks, 28 - 30 August 2013, Sheffield

[14] Ducoste, J.J.; Keener, K. M.; Groninger, J. W.and Holt, L. M. (2008) Fats, roots, oils, and grease (FROG) in centralized and decentralized systems. Water Environment Research Foundation. IWA Publishing, London.

[15] J.B. Williams, J.B.; Clarkson C.; Mant C.; Drinkwater, A. and May E. (2012) Fat, oil and grease deposits in sewers: Characterisation of deposits and formation mechanisms. Water Research **46** 6319-6328

on to elucidate the mechanism of FOGc formation, which points to grease recovery units being superior to static grease traps.

- Many cities in the USA mandate FWD for new builds and have done for decades, because operational experience has demonstrated over 80 years that they are effective and do not harm the wastewater management system. As two recent examples, in January 2012 the city of Philadelphia amended its dumpster code "Dumpsters may not be used for the disposal of grindable garbage. All food-related establishments are required to install garbage disposals for disposal of grindable garbage." and in March 2013 the State of Massachusetts amended its: Uniform State Plumbing Code 248 CMR 10.00 thus: "Commercial Food-waste Grinders Required. All establishments summarized in 248 CMR 10.09{2Xa), (restaurants, cafeterias. hotels ...) that are served by a municipal sanitary sewer and can seat 20 patrons or more shall incorporate food waste grinders." Philadelphia, Milwaukee, Boston and Tacoma are all encouraging citizens to use FWD so as to separate food waste at source and divert it from landfill[16].

Where food waste cannot be prevented, food waste disposers (FWDs) aid recycling and recovery, efficiently using existing infrastructure (with no detrimental effect), improving kitchen and street hygiene and reducing the need for collection vehicle emissions.

In seeking to impose a ban on food waste disposers Northern Ireland is regulating against proven technology and restricting policy success to a single solution. Anaerobic digestion is a good solution for food waste and for sewage sludge but physical contaminants (mainly plastic film) are a major operational problem for AD of separately collected food waste. As yet there is no clear winner in the search for a technology to remove physical contaminants. In contrast FWD leave physical contaminants in the kitchen and just deliver clean food waste to the sewer. On the basis of years of operational experience and of published research, administrations in many advanced countries are adding FWD to the toolbox of options for diverting food waste from landfill, and encouraging their use.

Article 2f of the proposed regulation, banning sink to sewer disposal, effectively bans FWDs that discharge finely ground food waste to the wastewater collection system. AMDEA urges Northern Ireland to consider the evidence, to keep abreast of current international environmental thinking and not to ban FWDs.

Yours faithfully

Douglas Herbison
Chief Executive

[16] http://www.food-waste-disposer.org.uk/worldwide-use