

**At the request of  
European Sustainable Phosphorus Platform**

---

**LEGAL OPINION**  
**on**  
**the Waste/Animal By Product (ABP) status of waste-derived algae**  
**with particular reference to the Animal Feeds Regulation**

**Version 2/11/2024**

---

***I - Background***

1. The Client is the European Sustainable Phosphorus Platform of 67 rue de Trèves, 1040 Bruxelles, Belgium. Its members represent a wide range of interests across the value chain of phosphorus stewardship, including fertilising products, agriculture, animal feeds, recycling technologies, and manure management.
2. They wish to consider certain regulatory obstacles to the use of particular materials derived from waste, namely algae or other biomass grown on wastewater substrates or manure, including the following specific issues:
  - Under what circumstances are algae grown in wastewater or in manure considered waste and/or ABP "Derived Products" and subject to End-of-Waste, or ABP End-Point requirements?
  - Are waste-grown algae excluded from animal feed by art 6(1) and Annex III of the Animal Feeds Regulation 767/2009?

3. We propose to consider the issues in the following order:

- In Section II we will consider whether such algae can achieve 'End of Waste' ("EOW") status as now contained in Article 6 of the Waste Framework Directive 2008/98/EC (hereafter "WFD"), and consider also the relevant provisions from the ABPR<sup>1</sup> for those materials which are not susceptible to the EOW test.
- In Section III we will consider issues arising under the Animal Feeds Regulation 767/2009 ("AFR").

Importantly, it should also be noted that this document is a Legal Opinion dealing with the above points and the above legal regimes. Accordingly, it does not seek to consider or take account of wider, or consequential, issues potentially applicable to an increased use of algae/biomass grown in or with waste or ABPs, including more general health, safety, environmental and consumer/downstream user confidence questions. These questions are important but it is not the role of this document to address them.

### **II – Waste, and how to escape it**

4. As is well known, "waste" means any substance or object which the holder discards or intends or is required to discard<sup>2</sup>. Once it has been discarded, it does not matter if a subsequent holder of the waste forms a different intention or believes the material to be capable of economic reuse; the original intention to discard continues until such time as the waste has been disposed of or recovered.
5. A perennially thorny legal issue is the specific point at which waste controls fly off. For example, if you incinerate waste, the original waste has been disposed of and no longer exists in its original form. But that does not mean that the ash resulting from incineration

---

<sup>1</sup> Regulation (EC) No 1069/2009 of the European Parliament and of the Council of 21 October 2009 laying down health rules as regards animal by-products and derived products not intended for human consumption

<sup>2</sup> WFD Article 3(1)

is no longer waste, as the legislation expects waste controls to continue until the material no longer presents the potential for harm to human health or the environment.

6. Putting it another way, the fact that waste happens not to be *further* “discarded” in the course of its management (e.g. because someone seeks to extract value from process residues, and who clearly therefore doesn’t want to discard it) does not have the effect of removing the material from waste controls for the same reason i.e. that once waste legislation ceases to apply, there can be no guarantee of compliance with the fundamental obligation to ensure that waste management is carried out without endangering human health or harming the environment.<sup>3</sup>
7. In the context of a Waste Water Treatment Plant, for example, the various outputs from the principal stages of processing of the incoming waste waters are inevitably still “waste”: sewage sludge is therefore waste<sup>4</sup>, as is the ash from the incineration of sewage sludge. Should you wish to make use of those outputs, by processing them in order to extract value from them, that would be classed as “recovery” under WFD Article 3(15)<sup>5</sup>. Just because there is “recovery” does not of itself imply that the materials have ceased to be “waste”. A particular form of “recovery” is “recycling” under WFD Article 3(17)<sup>6</sup> where waste is “reprocessed into products, materials or substances whether for the original or

---

<sup>3</sup> See WFD Article 13:

*“Member States shall take the necessary measures to ensure that waste management is carried out without endangering human health, without harming the environment and, in particular:*  
*(a) without risk to water, air, soil, plants or animals;*  
*(b) without causing a nuisance through noise or odours; and*  
*(c) without adversely affecting the countryside or places of special interest.”*

<sup>4</sup> An interesting, and possibly contrary, perspective appears in the Opinion of the ECJ Advocate General in Case C-60/18 AS Tallinna Vesi -v- Keskkonnaamet where she offered the following thought at paragraph 19: *“The appeal court clearly assumes that sewage sludge is waste because it does not ask whether, in the light of the exception provided for in Article 2(2)(a) of the Waste Directive in conjunction with the Waste Water Directive and/or the Sewage Sludge Directive, sewage sludge is to be regarded as waste at all. Neither does it ask whether the Sewage Sludge Directive may constitute a sufficient product standard. If doubts persist in relation to these questions, they must remain, for the time being at least, a matter for the national court.”*

<sup>5</sup> Where **recovery** “means any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy. Annex II sets out a non-exhaustive list of recovery operation.”

<sup>6</sup> Where **recycling** “means any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations.”

other purposes". Here we are getting closer to materials leaving the waste chain, but recycling is not necessarily the same thing as achieving 'End of Waste'<sup>7</sup>.

8. In one ECJ case the operator of a sewage treatment plant (including an activated sludge plant) took the view that the water purification operation constituted biological recycling<sup>8</sup> in which waste was transformed into products, and thereby ceased to be waste. The waste regulator disagreed and the matter ended up before the ECJ<sup>9</sup>.
9. The Court saw no means of achieving non-waste status other than by satisfying the End of Waste test (and also held it to be lawful for national (Estonian) law to deny EOW status except where national law provided specific EOW criteria – which it didn't for sewage sludge, much to the frustration of the treatment plant operator). As a result, despite having undergone stabilisation and disinfection, the sewage sludge had not ceased to be waste. As always with waste issues, a feature of the decision was the fact (i.e. the Court was satisfied that it was a fact) that recovery of sewage sludge entails certain risks for the environment and human health, in particular those linked to the presence of hazardous substances, hence the need for waste controls to continue, pending satisfaction of the EOW test.
10. **CONCLUSION:** The only way for most (non-ABP) "waste" to become a new non-waste product is for it to pass the EOW test as contained in the WFD. Not all materials are eligible for the EOW test, as it appears to be the case that those materials which are excluded from the scope of the WFD would equally not be able to access the WFD's EOW route.

### **End of Waste test - eligibility**

11. The notion of End of Waste developed in a series of ECJ rulings which considered whether a former waste remained 'waste', despite having been the subject of a complete recovery operation ("complete" in the sense that the recovered material had the same properties

---

<sup>7</sup> For the remainder of the EOW test, see paragraphs [11-51] below

<sup>8</sup> The sewage sludge was transferred to tanks for 15 days of AD, then dried and transferred to a composting area for aerobic digestion, and the company wished to market the recovered materials as 'greening soil'.

<sup>9</sup> As the Advocate General (i.e. adviser to the ECJ) noted in her opinion, the WFD definition with its focus on 'discarding' might lead you to suggest that a substance or object is no longer waste if its holder does not discard it, however "*such a (potentially spontaneous) change in waste status would, however, be incompatible with the waste management scheme laid down in the Waste Directive, inasmuch as that scheme presupposes first of all that the waste legislation remains applicable.*"

and characteristics as a raw material). Such matters required to be determined on a case-by-case basis.

12. To provide better clarity, the statutory EOW test was introduced in the 2008 iteration of the WFD. Certain materials, however, are excluded from the scope of the WFD, and therefore (it would seem) denied access to the EOW route.

13. Article 2 WFD is in the following terms (with those of particular interest for the purposes of this Opinion being in red):

**[the absolute exclusions]**

1. The following shall be excluded from the scope of this Directive:

- (a) gaseous effluents emitted into the atmosphere;
- (b) land (in situ) including unexcavated contaminated soil and buildings permanently connected with land;
- (c) uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which it was excavated;
- (d) radioactive waste;
- (e) decommissioned explosives;
- (f) faecal matter, if not covered by paragraph 2(b), straw and other natural non-hazardous agricultural or forestry material used in farming, forestry or for the production of energy from such biomass through processes or methods which do not harm the environment or endanger human health.

**[the dependent or conditional exclusions]**

2. The following shall be excluded from the scope of this Directive to the extent that they are covered by other Community legislation:

- (a) waste waters;
- (b) animal by-products including processed products covered by Regulation (EC) No 1774/2002, except those which are destined for incineration, landfilling or use in a biogas or composting plant;
- (c) carcasses of animals that have died other than by being slaughtered, including animals killed to eradicate epizootic diseases, and that are disposed of in accordance with Regulation (EC) No 1774/2002;
- (d) waste resulting from prospecting, extraction, treatment and storage of mineral resources and the working of quarries covered by Directive 2006/21/EC of the European Parliament and of the Council of 15 March 2006 on the management of waste from extractive industries;
- (e) substances that are destined for use as feed materials as defined in point (g) of Article 3(2) of Regulation (EC) No 767/2009 of the European Parliament and of the Council and that do not consist of or contain animal by-products.

14. It is therefore important to consider both the 'absolute' exclusions and also the 'dependent' or 'conditional' exclusions, and to examine the extent to which the client's chosen materials fall within any of those lists.
15. Those listed at WFD Article 2(1)(a)-(f) are absolutely excluded, although there is no conceptual cohesion amongst the entries on that list. The list is a somewhat random collection of materials which, for a variety of differing policy reasons, need not be regulated by the WFD<sup>10</sup>.
16. The separate list at Article 2(2)(a)-(e) refers to materials which are excluded from the scope of the WFD **but only** "*to the extent that they are covered by other Community legislation*". The primary reason for these exclusions appears to be to avoid unnecessary double regulation, and on the assumption that the "other Community legislation" adequately governs the treatment and management of the excluded waste streams.
17. To reiterate, the materials in Article 2(2)(a)-(e) are still waste, but they are excluded from the scope of the WFD *to the extent that* they are "covered" by other Community legislation – which raises the question as to what is required in order for them to be "covered" in this way (and thereby excluded from the scope of the WFD).

### ***Faecal matter and EOW***

18. The wording does not amount to an absolute exclusion as far as ESPP's plans are concerned, as Article 2(1)(f) refers to faecal matter "*used in farming, forestry or for the production of energy*". It is apparent, therefore, that the absolute exclusion would not apply to manure/slurry being used for the growth of algae, as such use would not be one of the listed uses. (If the practice of 'algae farming' were to develop in the future, it is arguable that this absolute exclusion might be held to apply, but it would likely require either an ECJ ruling to that effect, or a favourable steer from the Commission in order to avoid the suggestion that the drafters of the original wording could not have been

---

<sup>10</sup> Article 2(1)(b), for example [i.e. unexcavated contaminated soil] is there in order to overrule an ECJ decision in the "Van de Walle" case (Case C-1/03) which had concluded that unexcavated soil contaminated by hydrocarbons was "waste" – which then begged a number of questions as to how parts of the existing landscape could in practice be dealt with under waste management laws.

contemplating a use which was not generally recognised as naturally falling within the notion of “farming” at the time of promulgation.)

19. However, manure/slurry being used as the basis from which to grow algae would appear to qualify as an ABP on the basis that ABPR defines (at Article 9(a)) Category 2 ABPs as including “*manure, non-mineralised guano and digestive tract content*”. As a Category 2 ABP (and because of WFD Article 2(2)(b) on ABPs – see below), its use therefore falls to be regulated under ABPR [see sections beginning with paragraph 54 below], rather than under WFD, and its exploitation would – unless it were first destined for incineration – not be susceptible to EOW arguments under the WFD.

### ***Waste waters and EOW***

20. The WFD Article 2(2)(a) exclusion was examined fairly recently<sup>11</sup> by the European Court of Justice in the “Sappi Austria” case (C-629/19) which looked at the exclusion of “waste waters” under Article 2(2)(a). The Judgment contained the following paragraphs:

35 To be regarded as ‘other [EU] legislation’ within the meaning of Article 2(2)(a) of Directive 2008/98, the rules in question must not merely relate to a particular substance, but must contain precise provisions organising its management as ‘waste’ within the meaning of point 1 of Article 3 of Directive 2008/98. Otherwise, the management of that waste would be organised neither on the basis of that directive nor on that of another directive nor on that of national legislation, which would be contrary both to the wording of Article 2(2) of that directive and to the very objective of the EU legislation on waste (see, by analogy, as regards Article 2(1) of Directive 75/442, judgment of 10 May 2007, *Thames Water Utilities*, C-252/05, EU:C:2007:276, paragraph 33 and the case-law cited).

36 It follows that, for the EU rules in question to be regarded as constituting ‘other [EU] legislation’ within the meaning of Article 2(2) of Directive 2008/98, they **must contain precise provisions organising the management of waste and ensure a level of protection which is at least equivalent to that resulting from that directive** (see, to that effect, judgment of 10 May 2007, *Thames Water Utilities*, C-252/05, EU:C:2007:276, paragraph 34 and the case-law cited).

37 Directive 91/271<sup>12</sup> does not ensure such a level of protection. Although it regulates the collection, treatment and discharge of waste water, it contains no specific provisions on the management of sewage sludge. **It cannot therefore be regarded as relating to the management of such sewage sludge and ensuring a level of protection which is at least equivalent to that resulting from Directive 2008/98** (see, by analogy, judgment of 10 May 2007, *Thames Water Utilities*, C-252/05, EU:C:2007:276, paragraph 35).

---

<sup>11</sup> In a judgment dated 14<sup>th</sup> October 2020

<sup>12</sup> i.e. the Urban Waste Water Treatment Directive

38 As regards Directive 86/278<sup>13</sup>, which was relied on both by the referring court and by the parties to the main proceedings, as is clear from its very title as well as from its Article 1, it governs only the use of sewage sludge in agriculture. That directive is therefore irrelevant for the purposes of classifying sewage sludge incinerated in a waste incineration plant for the purposes of energy recovery by generating steam without any relation to agricultural activities.

39 Therefore, it should be noted that that waste water is not excluded from the scope of Directive 2008/98. This also applies to the sewage sludge in question in the main proceedings, which arises during the treatment of that waste water, since, under Article 2(2) of that directive, sewage sludge is also not included in the substances or the objects which can be excluded from its scope.

21. It is apparent, therefore, that the conditional exclusion from the scope of the WFD under Article 2(2) only applies if the other legislation manages the materials in such a way that it achieves no less a degree of environmental protection. It is also clear that any exclusion from the WFD flies off at some point during the waste water treatment process, leaving the outputs from that process to be governed by the WFD (i.e. "waste waters" should be dealt with initially under UWWTD rather than WFD, but as soon as the process results in, for example, "sewage sludge", the UWWTD is no longer adequate on its own, and the WFD steps back in to regulate those materials).
22. As a result, the concept of End of Waste is fully available in relation to the residues resulting from the waste water treatment process. Insofar as algae grown using such residues as inputs into the algae-growing process is concerned, they would certainly be candidates for EOW. What would be less clear is whether algae grown from untreated or unprocessed waste waters could be candidates for EOW, given that "waste waters" are excluded from the scope of the WFD to the extent that they are covered by other Community legislation. The UWWTD is the principal "other" legislation which regulates the manner in which waste waters should be treated. Arguably, therefore, that treatment must first be carried out before the WFD is then capable of stepping back in to deal with those aspects not adequately covered by the UWWTD. Assuming however that algae was to be grown from sewage or waste waters which had commenced some form of treatment, then the EOW argument would be open, although the algae-growing installation would likely have to be operated under applicable "waste" legislation and require an appropriate permit etc.

---

<sup>13</sup> i.e. the Sewage Sludge Directive



The following points should also be noted:

22.1 The above comments relate to those “waste waters” which would be expected to be treated under the UWWTD. That Directive legislates for the collection and treatment of “urban waste water” [which includes both domestic and industrial waste water, as well as run-off rain water] in those urban areas with a population equivalent of at least 2000 people. Smaller urban areas are generally not subject to the Directive (unless the waste waters are discharging to freshwater, estuaries, or coastal waters, in which case so-called ‘appropriate treatment’ must first be carried out). Waste waters in smaller urban areas which are not required to be subjected to ‘appropriate treatment’ would be excluded from the requirements of the UWWTD, and would simply be irrelevant to WFD Article 2(2)(a), and therefore within the scope of the WFD, and susceptible to EOW.

22.2 The UWWTD does not mandate the specifics of the treatment, but suggests the general means and stipulates the required outcome. Where, for example, “secondary treatment” is required, the definition requires a process involving biological treatment with a secondary settlement process “or an equivalent treatment”, such that the required levels of reductions in BOD, COD and suspended solids are achieved. It should therefore be possible to adapt the particular UWWT process to include algae growth as part of the process without that being in conflict with the requirements of the UWWTD, but that of itself would not provide an answer to the question of whether the algae thereby produced had ceased to be waste (which would still require EOW).

22.3 “Industrial waste water” includes any waste water which is discharged from premises used for carrying on a trade or industry, and would therefore include premises such as a horticultural greenhouse, but only of course if the waters are both “discharged” and are also “waste”. If waters produced from premises carrying on a trade or industry were discarded but not “discharged” (which in the context of the UWWTD appears to imply discharge to the public sewer), then the requirements of the UWWTD would not apply and the waste liquids would remain within the scope of the WFD and susceptible to EOW.

22.4 As ever with questions of waste, the issue of whether the material qualifies as “waste” as a result of having been discarded may arise. Generally, if the input material is

already “waste” then the products obtained by processing that material will require to “escape” the waste label by means of either EOW or, in appropriate circumstances, through the By-Products test. By contrast, if biomass digestate were to be produced from a process which involved non-waste agricultural products as the input, and the holder had not discarded it (and did not intend to do so, and was not required by law to do so), it would be difficult to see why the digestate should not be regarded as a non-waste material not subject to WFD, and not therefore requiring to undergo EOW.

### ***ABPs and EOW***

23. The wording of WFD Article 2(2)(b) seems fairly clear, namely, that ABPs (unless they are destined for incineration, landfilling or use in a biogas or composting plant) are excluded from the scope of the WFD “to the extent that they are covered by other Community legislation”.

24. The ECJ has had to rule several times on the inter-relationship between the ABP and Waste regimes. One of its most recent rulings is the 23 May 2019 Judgment in Case C-634/17 ReFood GmbH & Co. KG -v- Landwirtschaftskammer Niedersachsen, which says the following [at paragraphs 46 and 47]:

[46] However, as is apparent in essence from recitals 12 and 13 of the [WFD], the EU legislature considered that Regulation No 1774/2002 [**i.e. the predecessor of the current ABPR**] provided for proportionate rules, in particular, for the carriage of all animal by-products, including waste of animal origin, in order to prevent such waste from presenting a risk to animal and public health, and, in the light of the experience gained in the application of that regulation, considered that, in cases where such by-products pose potential health risks, that appropriate legal instrument for this type of risk was, in principle, that very regulation, so that duplication of rules and unnecessary overlaps with the legislation on waste should be avoided, by excluding from the scope of Directive 2008/98 animal by-products where they are intended for uses that are not considered waste operations.

[47] Accordingly, Article 2(2)(b) of [WFD] excludes animal by-products, including processed products covered by Regulation No 1774/2002, from the scope of that directive, with the sole exception of those which are destined for incineration, landfilling or use in a biogas or composting plant, thus highlighting the intention of the EU legislature to separate, in principle, animal by-products from the scope of legislation on waste.

25. Accordingly, ABPs destined for e.g. incineration fall to be regulated as “waste” under the WFD, so that *duplication of rules and unnecessary overlaps* is avoided.

26. On the other hand, ABPs which are not intended for incineration (or landfilling, or use in a biogas or composting plant) are excluded from the WFD. As Recital 12 to the WFD makes clear, *“it is therefore necessary to clarify the link with [ABPR], avoiding duplication of rules by excluding from the scope of this Directive animal by-products where they are intended for uses that are not considered waste operations.”* As a result, EOW under the WFD is not an available path in relation to such ABPs, and the issues raised below in relation to ABP end-point [see paragraphs 63-77] should be considered instead.
27. It should also be noted that much food waste is likely to be classified as at least Cat.3 ABP on the basis that meat, fish and other material from animals generally become animal by-products when the material is no longer intended for human consumption [Article 10(f) ABPR], even if the material is still edible. Catering waste (other than from international transport) is also classified as Cat.3 ABP [Article 10(p)]. Given the observations below at paragraphs [78-82] about mixtures of waste and ABPs (where the presence of any ABP will make the whole mixture an ABP), it also seems likely that separately collected household food waste would be an ABP, as it is likely to contain “products of animal origin or other products obtained from animals, which are not intended for human consumption”. Indeed, the Cat.3 category at Article 10(f) refers to material no longer intended for human consumption for commercial reasons or due to certain defects, which is unlikely to be the case for household food waste. On that basis – with household waste containing ABPs not being a defined category – it is arguable that it would be classified not as Cat.3 under Article 10(f) but as Cat.2 under Article 9(h), namely, ABPs other than Cat.1 and Cat.3.

### ***Animal feed and EOW***

28. Article 2(2)(e) contains a fairly narrow (conditional) exclusion from the WFD. The first restriction is that this particular exception does not apply to ABPs destined for feed, as those would already be covered [i.e. excluded from WFD] by Article 2(2)(b). As regards non-ABPs destined for use as feed, these would only be excluded from the WFD “to the extent covered by other Community legislation”. The crucial question [as we saw above in relation to waste waters and ABPs] is whether the “other” legislation (in this case animal

feed legislation) manages the materials in such a way that it achieves no less a degree of environmental protection.

29. Article 2(2)(e) is a relatively recent addition to the list of those wastes excluded from the scope of the WFD by virtue of being covered by other Community legislation. It was introduced within the Circular Economy 'package' of amendments to waste legislation<sup>14</sup> and contained in Directive 2018/851, which required Member State transposition by 5<sup>th</sup> July 2020. There do not appear to have been any ECJ cases which consider the relationship between WFD and AFR.

30. The relevant recital in relation to its introduction is as follows:

"Plant-based substances from the agri-food industry and food of non-animal origin no longer intended for human consumption which are destined for oral animal feeding should, in order to avoid duplication of rules, be excluded from the scope of Directive 2008/98/EC if in full compliance with Union feed legislation. Directive 2008/98/EC should therefore not apply to those products and substances when used for feed, and the scope of that Directive needs to be clarified accordingly."<sup>15</sup>

31. There is nothing in the above recital to indicate that either the recital or the new exclusion had in mind those materials resulting from, for example, the incineration of sewage sludge ash: the recital refers only to plant-based substances and food of non-animal origin no longer destined for human consumption.

32. Further background is available in Commission Notice 2018/C 133/02 of 16<sup>th</sup> April 2018 containing 'Guidelines for the feed use of food no longer intended for human consumption'. It was issued at a time when the introduction of the above new exclusion into the WFD was still a proposal. It refers to a consultation exercise which highlighted disproportionate burdens from potential double regulation (under both Feed and Waste regimes) which

---

<sup>14</sup> Comprising (a) Directive 2018/849 of May 30, 2018, amending Directives 2000/53/EC on end-of-life vehicles; 2006/66/EC on batteries and accumulators and waste batteries and accumulators; and 2012/19/EU on waste electrical and electronic equipment; (2) Directive 2018/850 of May 30, 2018, amending Directive 1999/31/EC on the landfill of waste; (3) Directive 2018/851 of May 30, 2018, amending Directive 2008/98/EC on waste; and (4) Directive 2018/852 of May 30, 2018, amending Directive 94/62/EC on packaging and packaging waste.

<sup>15</sup> Recital 8 from Directive 2018/851

could hinder or even prevent operators supplying food no longer intended for human consumption to be used as feed.

33. Those Guidelines give the example of a food business operator deciding that biscuits which have become broken should be withdrawn from sale as food and instead destined for use as feed. The Commission asserts that certain Member States would, in such circumstances, regard the decision to remove the broken biscuits from the food supply chain as 'discarding' the food and consequently require the transportation of the biscuits to comply with the WFD in relation to movements of waste. The Guidelines accordingly declare that (subject to the implementation of what was to become the new Article 2(2)(e)), the direct feed use of such final food products will be allowed, and waste management controls would cease to be required.
34. Although the recital refers rather more specifically to "plant-based substances from the agri-food industry" and "food of non-animal origin", Article 2(2)(e) itself refers simply to "substances". In order to fall within the new exclusion, the "substances" have to be "destined for use as feed materials", which obviously begs the question 'when is a substance destined for use as feed material?'
35. The word "destined" features regularly in this, and related, areas of EU Law, with examples including "destined for use as feed", "destined for incineration", and "destined for subsequent reprocessing". At what point can we say that a substance is "destined" for use as feed material?
36. We are not aware of the word having been given a meaning by the ECJ other than its plain, ordinary meaning. Clearly "destined" is to be contrasted with "predestined", with the latter connoting something which is fated to happen. "Destined", on the other hand, is presumed to have its plain, ordinary dictionary meaning of "intended (for a particular purpose) ", and arguably with a degree of certainty as to that intended purpose.
37. It is therefore difficult to conceive of something becoming "destined for use as feed" merely by accident. Rather, it (arguably) requires some degree of choice and also of preparation,

in that a conscious act is required by the person having control of the material to pronounce that it is, from some particular point of readiness, now “destined” for that specific end use.

38. Looked at in this way, it is relatively easy to see that the substances contemplated by Article 2(2)(e) are materials which might (but for Article 2(2)(e)) be regarded as “waste”, but for which there is no justification in burdening their holder with waste controls, so long as compliance with Feed legislation alone will achieve the necessary level of protection.
39. Accordingly, waste controls cease to apply (in the sense that materials fall within Article 2(2)(e)) only at the very end of the process, when the operator is satisfied that they meet all the necessary criteria to be supplied as feed, and are at that point “destined” for that use. Up until that point, they will still be subject to the WFD, meaning that processes such as the process of incinerating sewage sludge, or processing the resulting ash in order to extract other materials of value, or growing algae from UWWT residues to use as feed will therefore continue to be subject to the WFD.

### **EOW – the test**

40. As we have seen, only a few (albeit still highly significant) waste materials are excluded from the possibility of achieving EOW under the WFD. The main such exclusions as examined above are (a) untreated urban waste waters (which would be expected to be processed pursuant to the UWWTD), and (b) ABPs not intended for incineration (which would be dealt with under the ABPR). We will come back to ABPs at paragraph [54] below.

41. The WFD End of Waste (“EOW”) test is contained in Article 6 WFD, consisting of 5 numbered paragraphs. The first paragraph sets out the initial requirements, which are in the following terms:-

**1. Member States shall take appropriate measures to ensure that waste which has undergone a recycling or other recovery operation is considered to have ceased to be waste if it complies with the following conditions:**

**(a) the substance or object is to be used for specific purposes;**

**(b) a market or demand exists for such a substance or object;**

**(c) the substance or object fulfils the technical requirements for the specific purposes and meets the existing legislation and standards applicable to products; and**

**(d) the use of the substance or object will not lead to overall adverse environmental or human health impacts.**

42. As is apparent from the opening words, EOW envisages that waste has undergone a “recycling or other recovery operation” (rather than a disposal process). Taking waste waters as an example, there may be several outputs from the UWWT process. The process is multi-faceted, and cannot be regarded simply as “disposal”. Moreover, the whole thrust of recent developments in Waste law has been to avoid waste simply being disposed of, and to encourage treatments which can be regarded as coming higher up the waste hierarchy<sup>16</sup>.
43. So long as the source material for your recovery or recycling process (again, looking at UWWT) is an interim ‘product’ from the treatment process (such as sewage sludge itself, or ash resulting from the incineration of sewage sludge), there is no obvious reason why the beneficial materials extracted by those processes should not be regarded as candidates for the EOW test.
44. After all, the recitals to the WFD appear to be inviting us to do so. These include the following:

Recital (8) to 2008/98: “Furthermore, the recovery of waste and the use of recovered materials should be encouraged in order to conserve natural resources.”

Recital (19) to 2008/98: “The definitions of recovery and disposal need to be modified in order to ensure a clear distinction between the two concepts, based on a genuine difference in environmental impact through the substitution of natural resources in the economy and recognising the potential benefits to the environment and human health of using waste as a resource.”

Recital (22) to 2008/98: “[T]his Directive should clarify when certain waste ceases to be waste, laying down end-of-waste criteria that provide a high level of environmental protection and an environmental and economic benefit; possible categories of waste for which ‘end-of-waste’ specifications and criteria should be developed are, among others, construction and demolition

---

<sup>16</sup> As set out in WFD Article 3 where recycling is to be given priority over recovery, and recovery is to be given priority over disposal.

waste, some ashes and slags, scrap metals, aggregates, tyres, textiles, compost, waste paper and glass.”

and

Recital (22) to 2008/98: “For the purposes of reaching end-of-waste status, a recovery operation may be as simple as the checking of waste to verify that it fulfils the end-of-waste criteria.”

45. Moreover, we have since had the benefit of the amendments to the WFD introduced as part of the Circular Economy “package” of measures<sup>17</sup>, including Directive 1018/851 which introduced amendments to the WFD and to the EOW test itself. The recitals to that Directive include the following:

Recital (2): “Improving the efficiency of resource use and ensuring that waste is valued as a resource can contribute to reducing the Union’s dependence on the import of raw materials and facilitate the transition to more sustainable material management and to a circular economy model.

Recital (17): “In order to provide operators in markets for secondary raw materials with more certainty as to the waste or non-waste status of substances or objects and to promote a level playing field, it is important that Member States take appropriate measures to ensure that waste that has undergone a recovery operation is considered to have ceased to be waste if it complies with all the conditions laid down in Article 6(1) of Directive 2008/98/EC as amended by this Directive.”

46. The End of Waste criteria introduced in 2008 originally envisaged that EU-wide EOW criteria would be developed for specific recovered products by the European Commission<sup>18</sup>, and further provided that where such criteria had **not** been set at Community level, Member States could decide on a case-by-case basis whether certain waste had ceased to be waste, taking into account applicable case law.

47. The EOW criteria in the WFD have now been further modified as a result of Directive 2018/851. That Directive made some fairly major changes to the EOW provisions in Article

---

<sup>17</sup> See footnote [14]

<sup>18</sup> So far, this has only been achieved in relation to three waste streams, namely, (a) iron, steel and aluminium scrap, (b) glass cullet, and (c) copper scrap, the last of these being back in 2013.



6 of the WFD, and had a transposition deadline of 5<sup>th</sup> July 2020. Those are the applicable provisions for present purposes, with the first paragraph being set out at paragraph [41] above. For ease of reference, the modified Article 6 is set out in full in the Annex to this Opinion.

48. The revised Art. 6 wording adds certain elements of detail to the EOW test including in the following respects:-

(a) Previously, it was not entirely clear whether the criteria in Article 6.1 were to inform all domestic case-by-case decisions, or whether those criteria were only intended to apply to Community-wide measures such as those mentioned in footnote [18]. Now, however, Member States must take appropriate measures to “ensure” that EOW status is accorded to products which meet the Article 6.1 criteria i.e. it is clear that these are the domestic criteria applicable in each Member State.

(b) Article 6.2 also contains detailed criteria labelled (a) to (e) to be taken into account not only by the Commission when setting EU-wide EOW criteria, but also by Member States (under Article 6.3) when setting any national criteria. These include a requirement for “*quality criteria .... in line with the applicable product standards*”.

(c) Where a Member State has not set a national standard, it may proceed on a case-by-case approach, but under Article 6.4 such an approach is expected to apply both the Article 6.1 criteria AND the Article 6.2 criteria.

(d) Article 6.5 is completely new and places an obligation on the person who places a non-waste material on the market for the first time to ensure that it meets the applicable product legislation<sup>19</sup>.

---

<sup>19</sup> This is a factor that would have to be considered in framing any specific EOW test. This may include not just meeting product specifications, but in a more general sense potentially seeking approval under the REACH regime (i.e. EC Regulation No 1907/2006 of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals), which generally becomes applicable to a former “waste” which is now a “product”. Exemptions may be possible where in effect the same product has been registered before, and specialist advice should be sought on REACH.

(e) There is no longer any reference to individual decisions being taken on the basis of “applicable case law”. EOW decisions now have to be taken in accordance with the criteria set out in the Directive. To that extent it may remove an element of ‘wriggle room’ associated with the interpretation of case law.

49. In order to satisfy the EOW test, for any fully recovered “product” which you desire to be regulated as a non-waste, evidence would have to be supplied to demonstrate how each criterion is met. We do not propose looking into the specifics of such a test in this Opinion. As ever with the EOW test, the principal challenge usually arises in relation to criteria (c) and (d) to show equivalence of product standard and environmental impact as between a waste-derived product and its virgin equivalent. No doubt suitably detailed testing would be necessary to demonstrate that any potentially harmful elements had been removed<sup>20</sup>.

50. If you are able to show compliance (and present a convincing case that there is no harm to human health or the environment from the recovered “product”) there were some very encouraging and supportive statements from the ECJ in the Tallinna Vesi case cited above for those genuinely seeking to make the circular economy work, including:-

- The Advocate General’s point in paragraph 44 of her Opinion:

“44. The freedom enjoyed by the Member States in the application of Article 6(4) of the Waste Directive is not unlimited, however. They must not only take into account the objectives pursued by the directive, such as the waste hierarchy laid down in Article 4, in particular the promotion of waste recovery in recital 29, but also respect the fundamental rights of the persons concerned, in particular, in this case, the fundamental right to property under Article 17 of the Charter of Fundamental Rights and the freedom to conduct a business under Article 16.”

and

- The Court’s point at paragraph 27 of their Judgment:

“27 However, as the Advocate General has observed in point 44 of her Opinion, the Member State must ensure that such abstention does not amount to an obstacle to the attainment of the objectives set by Directive 2008/98, such as encouraging the application of the waste hierarchy laid down in Article 4 of that directive, or, as is stated in recitals 8 and 29, encouraging the recovery of waste and the use of recovered material in order to preserve natural resources and to enable

---

<sup>20</sup> As we saw at paragraph [9] above, any suggestion that such materials are still present will be a red flag to the ECJ that waste controls must continue.

the development of a circular economy. In that context, it is for the Commission and, failing that, for the Member States, to take into account all relevant elements and the most recent scientific and technical knowledge in order to adopt specific criteria which allow the national authorities and courts to recognise end-of-waste status for waste which has undergone a recovery operation, which enables it to be used without endangering human health and without harming the environment.”

51. Such statements certainly indicate that the ECJ may, in the right cases, be willing to deal quite decisively with Commission or Member State intransigence, where outdated approaches (not in keeping with the most recent scientific and technical knowledge) are threatening to scupper businesses keen on developing the circular economy.

***A possible alternative to EOW***

52. It may also be worth exploring with the Commission whether they take the view, as a matter of legal interpretation, that the WFD “By-Products” argument is capable of applying to materials produced as a result of certain wastewater treatment processes, especially those deliberately set up for the purposes of producing algae.

53. To summarise the main issues for present purposes with the By-Products test:-

53.1. As well as introducing an “End of Waste” test for recovered materials, the 2008 version of the WFD<sup>21</sup> also introduced a “By Products” test to the effect that a substance or object, resulting from a **production process**, the primary aim of which was not the production of that item, may be regarded as a non-waste by-product if (but only if) the following conditions are met:

- (a) further use of the substance or object is certain;
- (b) the substance or object can be used directly without any further processing other than normal industrial practice;
- (c) the substance or object is produced as an integral part of a production process; and

---

<sup>21</sup> At Article 5

(d) further use is lawful, i.e. the substance or object fulfils all relevant product, environmental and health protection requirements for the specific use and will not lead to overall adverse environmental or human health impacts.

53.2. On the face of it there are difficulties in seeking to apply the By Products test to those materials produced from the treatment of wastewaters, primarily as a result of the legal requirement that the materials must result from a “production process”, since a waste treatment process would not readily qualify as a production process.

53.3. However the matter may be open to interpretation, with the challenge being to convince the authorities that the waste treatment process is itself a “production process”. Part of the process of UWWT has been described as a production process in certain circumstances<sup>22</sup>, but to be successful in that argument it would be necessary to show that the process had been specifically set up to produce the By Product in question, and the other criteria of the legal test would also have to be met, including the requirement that the material can be used “directly without any further processing”.

### **ABPs – If not EOW, then what?**

54. As we have seen, the WFD excludes ABPs from its scope, at Article 2(2)(b). They should instead be regulated under the ABPR, which lays down rules to protect the safety of the food and feed chain. It creates three categories of ABPs comprising (in increasing order of seriousness) Category 3 (which includes slaughtered animals fit for human consumption but not intended for that use), Category 2 (which includes animal manure and animals killed for disease control), and Category 1 (which includes infected wild animals and TSE-risk animals and parts). As we saw above, manure intended to form a basis for growing algae would be a Cat.2 ABP. Accordingly, for present purposes we will focus on Cat. 2 ABPs.

---

<sup>22</sup> The “Sappi Austria” case referred to at [paragraph 20] above involved a production process where waste water from paper and pulp production was treated on-site. The sludge might well have been able to satisfy the By Products test, but for the fact that the sewage treatment plant in question also treated a small element of municipal waste waters, which became mixed with the waste water from the paper plant.

55. Article 13 ABPR deals with disposal and use of Cat. 2 material. It is mandatory in its terms (setting out 9 options lettered (a) to (i) which “shall be” deployed for the disposal or use of Cat.2 material), which are as follows:

Category 2 material shall be:

(a) disposed of as waste by incineration:

(i) directly without prior processing; or

(ii) following processing, by pressure sterilisation if the competent authority so requires, and permanent marking of the resulting material;

(b) recovered or disposed of by co-incineration, if the Category 2 material is waste:

(i) directly without prior processing; or

(ii) following processing, by pressure sterilisation if the competent authority so requires, and permanent marking of the resulting material;

(c) disposed of in an authorised landfill, following processing by pressure sterilisation and permanent marking of the resulting material;

(d) used for the manufacturing of organic fertilisers or soil improvers to be placed on the market in accordance with Article 32 following processing by pressure sterilisation, when applicable, and permanent marking of the resulting material;

(e) composted or transformed into biogas:

(i) following processing by pressure sterilisation and permanent marking of the resulting material; or

(ii) in the case of manure, digestive tract and its content, milk, milk-based products, colostrum, eggs and egg products which the competent authority does not consider to present a risk for the spread of any serious transmissible disease, following or without prior processing;

(f) applied to land without processing, in the case of manure, digestive tract content separated from the digestive tract, milk, milk-based products and colostrum which the competent authority does not consider to present a risk for the spread of any serious transmissible disease;

(g) in the case of material originating from aquatic animals, ensiled, composted or transformed into biogas;

(h) used as a fuel for combustion with or without prior processing; or

**(i) used for the manufacture of derived products referred to in Articles 33, 34 and 36 and placed on the market in accordance with those Articles.**

56. Most of those options involve either waste disposal processes (such as landfilling or incineration) or waste recovery processes (such as combustion as a fuel). Option (i) on the other hand involves ABPs being used for the manufacture of “derived products” referred to in Articles 33, 34 and 36 of the ABPR. (In addition, Cat.2 materials may be used to manufacture organic fertilisers or soil improvers under Article 13(d) and Cat.3 materials similarly under Article 14(d)(iv).)

57. The term “derived products” is defined in Article 3(2) ABPR as “products obtained from one or more treatments, transformations or steps of processing of animal by-products”. Indeed, derived products are at the heart of the ABPR to the same extent as ABPs themselves, with the full title of the ABPR referring to ABP and “derived products”.
58. (As a brief aside, if we were dealing with materials recovered from the disposal of ABPs as waste, e.g. incineration residues, it appears that such materials would not be “derived products” on the basis that incineration is “disposal” [involving the consequential reduction to waste residues] and is something linguistically and conceptually separate and distinct from either a “treatment”, “transformation” or “step of processing” of an ABP. Moreover, as already noted, a “derived product” from Cat.2 ABPs for the purposes of Article 13 would be a product **manufactured** under Article 13(i), and not the residues resulting from incineration under Article 13(a). On that basis, the ash could be regarded as having escaped regulation under ABPR, and at that point to be regulated by the WFD, and susceptible to the EOW test. As explored later in this section, that approach would be on the basis that the usual pathogenic risks associated with ABPs would be assumed to have been adequately dealt with as a result of the incineration process, allied to the fact that the ABPR does not expressly seek to regulate incineration residues.)
59. The stated purpose of the ABPR, per Article 1, is thus to lay down public/animal health rules for ABPs and derived products “*to prevent and minimise risks to public and animal health [...] and in particular to protect the safety of the food and feed chain*”.
60. In addition, Article 4 (dealing with the regulatory “starting point”) requires that as soon as an operator generates ABP “or derived products” falling within the scope of the ABPR, they must be dealt with in accordance with the ABPR; and Article 5 (dealing with the “end point in the manufacturing chain”)
- (i) directs ABPR controls to cease when derived products referred to in Article 33 [i.e. the cosmetic; implantable medical; medical; in vitro diagnostic medical; veterinary medical; and medicinal as referred to in the footnoted Directives]<sup>23</sup>

---

23 (a) cosmetic products as defined in Article 1(1) of Directive 76/768/EEC;

have reached the stage of manufacturing regulated by the legislation referred to in Article 33;

and

(ii) implies that ABPR controls might cease when derived products referred to in Articles 32 [soil improvers], 35 [pet food], and 36 [“other derived products”] no longer pose any significant risk to public or animal health.

61. We say “implies”, above, in relation to the end-point for other derived products under Article 36 as the wording of Article 5(2) is slightly odd. The exact wording is:-

For derived products referred to in Articles 32, 35 and 36 which no longer pose any significant risk to public or animal health, an end point in the manufacturing chain may be determined, beyond which they are no longer subject to the requirements of this Regulation.

The use of the phrase “may be determined” suggests that it is not enough for the material to be shown to no longer pose risks to public or animal health: the end point appears not to be automatic, and to depend on some further “determination” i.e. being free of such risks is a necessary but not a sufficient condition for achieving the end point.

62. Article 5(2) then goes on to say that “*those derived products may subsequently be placed on the market without restrictions under this Regulation and shall no longer be subject to official controls in accordance with this Regulation.*” The reference to “those” derived products presumably refers to those which have had their end point “determined”. The final paragraph of Article 5(2) then goes on to empower the Commission to determine the end point:

“The Commission is empowered to adopt delegated acts in accordance with Article 51a supplementing this Regulation by determining an end point in the manufacturing chain, beyond which derived products referred to in this paragraph are no longer subject to the requirements of this Regulation.”

---

(b) active implantable medical devices as defined in Article 1(2)(c) of Directive 90/385/EEC;

(c) medical devices as defined in Article 1(2)(a) of Directive 93/42/EEC;

(d) in vitro diagnostic medical devices as defined in Article 1(2)(b) of Directive 98/79/EC;

(e) veterinary medicinal products as defined in Article 1(2) of Directive 2001/82/EC;

(f) medicinal products as defined in Article 1(2) of Directive 2001/83/EC.

### *Determination of an end point*

63. As noted above, the DPs permitted under Article 13(i) are those referred to in Articles 33/34 and 36. As far as the 6 types of product listed in Article 33 are concerned, the end point should be upon those products being subject to the legislation referred to in Article 33 (although Article 34 supplements matters by providing that the ABPR shall continue to apply for those 6 product categories in the event that the other legislation does not suitably deal with the control of potential risks to public and animal health).

64. Matters are different for DPs under Article 36. It is subtitled "Placing on the market of other derived products", which indicates that its scope is intended to be fairly expansive, but the wording is somewhat questionable, as follows:

*Operators may place on the market derived products, other than the products referred to in Articles 31, 32, 33 and 35, provided:*

*(a) those products are:*

*(i) not intended for use for the feeding to farmed animals or for application to land from which such animals are to be fed; or*

*(ii) intended for feeding to fur animals; and*

*(b) they ensure the control of risks to public and animal health by*

*(i) safe sourcing in accordance with Article 37;*

*(ii) safe treatment in accordance with Article 38, where safe sourcing does not ensure sufficient control; or*

*(iii) verifying that the products are only used for safe end uses in accordance with Article 39 where safe treatment does not ensure sufficient control.*

65. The syntax is manifestly dubious, as the above wording requires that in order for a product to be an Article 36 DP, it must be intended for feeding to fur animals. It is possible that the word "not" was perhaps intended to appear in front of "(i)" and to qualify both (i) and (ii). Without such an adjustment Article 36(a) as a whole is meaningless nonsense, as (a)(i) would then serve no purpose if the overarching requirement under (a)(ii) is that the DP can only be fed to fur animals. [It would be sensible to query the position with the Commission, since other language versions of the ABPR appear to repeat the same



questionable word structure, but for present purposes we will proceed on the basis that an Article 36 DP cannot be used for farmed animal feed, or applied to their land, or fed to fur animals.]

66. Moreover, there is clearly a link between Articles 5 and 36, and it appears to be one of 'subsequence'. Article 5 is entitled "End point in the manufacturing chain", and Article 36 is entitled "Placing on the market of other derived products" – these are two different provisions, dealing with two different things. According to Article 5(2), a DP complying with the requirements of Article 36 "may" have its end point determined and, crucially, may "subsequently" be placed on the market.
67. Thus it is clear that the determination of the end point comes first, and only once that has happened may the DP be placed on the market. Accordingly we conclude that compliance with Article 36 is not the same as achieving the end-point. The net result is that it remains unclear how, if at all, an end point can be determined other than by the Commission legislating for one. (They have already legislated in relation to, for example, (i) biodiesel and various petfoods<sup>24</sup>, and (ii) certain organic fertilisers and soil improvers<sup>25</sup> provided that they are used as component materials in EU fertilising products.) Since compliance with Article 36 is not the same as reaching an end-point, it would be impossible for an operator to insist, by legal action, that an end point has been reached (unlike the position with EOW under the WFD, which gives operators more 'teeth').
68. For Cat.2 ABPs, Article 13 lists the mandatory methods of dealing with Cat.2 ABPs including
- Article 13(d) (re organic fertilisers and soil improvers), where an end point may be determined [by the Commission] (but generally these are expected to have been processed by pressure sterilisation);
  - Article 13(i) DPs produced under Article 33/34 (re cosmetic, medical etc) where an end point would be achieved upon meeting the requirements of the individual items of legislation referred to in Article 33;

---

<sup>24</sup> Commission Regulation No 142/2011

<sup>25</sup> Commission Delegated Regulation 2023/1605

- Article 13(i) DPs produced under Article 36 (“other derived products”), where an end point may be determined [by the Commission]

69. (Indeed, in relation to organic fertilisers and soil improvers, an end point was subsequently determined by the Commission as contained in Regulation 2023/1605. That regulation provides that certain ash, biogas plant residues, compost and processed manure shall be considered as having reached their end point upon demonstrably complying with the requirements of that regulation, and accordingly are no longer subject to the requirements of the ABPR.)

70. It is important to appreciate that the ABPR does not define an end-point (or provide for the Commission defining an end point) in relation to every ABP. As noted above, Article 5 defines an end-point for DPs under Article 33, and provides for the determination of an end-point for DPs under Article 32 [as has happened – see preceding paragraph] and Article 36 (and also Article 35 dealing with pet food, but that Article is irrelevant for present purposes as Cat.2 material cannot be used for pet food). No other end-points are declared. This therefore raises the question of whether, and if so when, ABPs which have undergone one of the other permitted disposals or uses under Article 13 can escape ABPR controls. The relevant disposals and uses for which no end-point is declared<sup>26</sup> are therefore:

- (a) disposed of as waste by incineration:
  - (i) directly without prior processing; or
  - (ii) following processing, by pressure sterilisation if the competent authority so requires, and permanent marking of the resulting material;
- (b) recovered or disposed of by co-incineration, if the Category 2 material is waste:
  - (i) directly without prior processing; or
  - (ii) following processing, by pressure sterilisation if the competent authority so requires, and permanent marking of the resulting material;
- (c) disposed of in an authorised landfill, following processing by pressure sterilisation and permanent marking of the resulting material;
- (d) [end point determined by Commission for fertiliser see Regulation 2023/1605]
- (e) composted or transformed into biogas:
  - (i) following processing by pressure sterilisation and permanent marking of the resulting material; or

---

<sup>26</sup> Unless the resulting materials happen then to be used as organic fertilisers and soil improvers under Regulation 2023/1605, in which case an end point, to some extent, can be taken to have been determined for outputs from Article 13 (a), (b), (d) and (e) in that the regulation deals with incineration ash, biogas plant residues, compost and processed manure.

(ii) in the case of manure, digestive tract and its content, milk, milk-based products, colostrum, eggs and egg products which the competent authority does not consider to present a risk for the spread of any serious transmissible disease, following or without prior processing;

(f) applied to land without processing, in the case of manure, digestive tract content separated from the digestive tract, milk, milk-based products and colostrum which the competent authority does not consider to present a risk for the spread of any serious transmissible disease;

(g) in the case of material originating from aquatic animals, ensiled, composted or transformed into biogas;

(h) used as a fuel for combustion with or without prior processing; or

(i) [end point determined by Commission for DPs under Article 36, and by relevant legislation for DPs under Article 33].

71. Article 13 appears in a section of the ABPR called "Section 2 - Disposal and Use". Within that same section is found Article 15 which provides for "implementing measures" being applied to certain elements of the permitted disposals and uses in Section 2 as a whole, including the imposition of parameters in relation to the transformation of ABPs into biogas/compost, conditions for the incineration or combustion of ABPs, and implementing measures relating to the application to land of certain ABPs, organic fertilisers, and soil improvers.

72. In very broad terms, the scope of the "implementing measures" means that virtually all of the Article 13 disposals and uses can potentially be the subject of further detailed legislation. This does not alter the fact that only certain ABPs have an end-point declared, but does suggest that there is likely to be limited scope on the part of operators to argue that ABP controls have ceased, still less that they should be deemed to have automatically ceased (especially if the competent authority takes a differing view), when perhaps all that has happened is that the Commission hasn't yet decided to bring in implementing measures to cover the particular scenario under discussion. The fact that the Implementing Regulation 142/2011 has been amended 35 times and consequently grown from 254 pages to 360 pages indicates that the power to introduce implementing measures is likely to continue to be well used.

73. An example of the potential complexities can be seen in the case of compost, which poses some interpretative difficulties. For a start, the ABPR definition of "organic fertiliser" and "soil improver" [at Article 3(22)] states that such materials "may" include "compost and digestion residues". Under Article 13(e) Cat.2 material is allowed to be "composted or

transformed into biogas”, with those terms being left undefined, and manure is permitted to be composted or transformed into biogas without necessarily requiring prior processing. But no end-point is declared, or even contemplated, under Article 5 for ABPs which are “composted or transformed into biogas”. The Article 13(e) process, we might be forgiven for presuming, is intended as something quite separate from the Article 13(d) process whereby Cat.2 ABPs can be used for the manufacturing of organic fertilisers or soil improvers. Yet, if we assume that the principal material resulting from composting will be “compost”, it raises the question whether any of the products or materials which result from, or are created during, composting or transformation into biogas (such as “compost” or “digestion residues”) are to remain regulated under the ABPR. It would be an unusual application of legislation if manure could be lawfully turned into compost, or lead to the production of digestate, under one process [Article 13(e)], only for those products or outputs then to require to be regulated a second time, under Article 13(d). And yet this appears to be what is contemplated by, for example, Regulation 2023/1605.

74. In practice it appears that, to an extent, ABP controls can continue to apply, in that the Implementing Regulation imposes certain requirements on digestion residues, including in relation to pathogen levels. It also contemplates that alternative and bespoke parameters for biogas and composting plants might be agreed with the competent authority depending on validated reduction of biological risks.

75. As Cat.2 includes “manure”, and its onward uses are limited to those contained in Article 13, it means that many current uses of manure are arguably not permitted (as either not involving one of the processes allowed under Article 13, or comprising such a process but without an end-point having been determined or without the determined end point criteria having been met, or where the lawfulness of the use of the materials has not been officially established with the competent authority). ESPP indicated the following possible uses of manure, which we suggest would be concerned by this question:

- A) Treated manure spread to land: whilst manure can be applied to land **without** processing under Article 13(f), there is no apparent outlet for treated/processed manure being spread to land, unless it is done under Article 13(d) [in accordance with Article 32] as an organic fertiliser or soil improver (and in that event pressure sterilisation is likely to be required, and compliance with Article 32 also requires that the material comes from an approved plant).

Furthermore, the following uses of manure might be of doubtful legality, many of which are done 'on farm' where the Article 13(d) requirements of pressure sterilisation and/or production in approved plants would not be satisfied, including

- biological treatment of manure
- dried manure
- solid/liquid separated manure
- acidification of manure (widely practised with 'on tractor' or 'in tank' systems, to reduce ammonia losses)
- liquid fraction (of solid/liquid separated manure) from which ammonia has been stripped
- stabilisation /nitrogen enrichment by plasma (N2 Applied process);

- B) Pyrolysis, to produce biochar or hydrochar. This would only be allowed if either the char was used in organic fertilising products [Article 13(d)] or as an Article 36 DP with non-fertilising product uses, such as activated carbon for wastewater treatment, for which an end-point had been determined;
- C) Recovery of fibres from slurry for use as animal bedding;
- D) Recovery of chemicals for industrial applications, e.g. bioplastics;
- E) Use as substrate or nutrient input to grow bacteria or algae for production of biofuels or for extraction of chemicals;
- F) Use as substrate or nutrient input to grow algae for use as fertilising products or in fertiliser production; and
- G) Use as substrate for vermiculture, to produce worms used for animal feed

76. Similarly, if Cat.2 ABPs are "transformed into biogas" under Article 13(e) the process will produce digestate, and although the Implementing Regulation has a few things to say about "digestion residues", these do not amount to anything definitive about their onward uses, and whether ABPR controls will continue to be applicable. We do however have Regulation 2023/1605 indicating an end point for certain biogas residues when used as fertiliser, reinforcing the message that ABPR controls are likely to continue until officially relinquished.

77. In this context it should be noted that the ABPR specifically contemplates in Article 20 that alternative methods of use or disposal of ABPs and DPs may be devised and discussed for

potential approval. Taking all of the above into account, it is difficult to escape the conclusion that an ABP leaves the control of the ABPR only when the competent authority is satisfied that it should, and that the scope for operators to insist that materials are incapable of further regulation under ABPR is extremely limited. The better approach would likely be to provide satisfactory risk-based evidence to demonstrate that such controls need no longer apply, and to secure official agreement.

### ***ABPs mixed with Waste – what’s their status?***

78. The ECJ has considered the status of mixtures of waste and ABPs. The Kamstra Recycling case<sup>27</sup> of 2020 concerned sewage sludge mixed with Cat.3 ABPs, with the particular question being whether such a mixture merely needed to comply with ABPR requirements, or whether it was also subject to Waste laws, including trans-frontier shipments of waste.
79. The ECJ’s view was, first, that it was apparent from ABPR Articles 12 to 14 (laying down the conditions for which ABPs, if they are waste, are recovered or disposed of by co-incineration) that an ABP under ABPR may also be “waste” in terms of the WFD.
80. They further took the view that the EU legislature’s intention was to bring all transfers of ABPs, including mixtures of such by-products and waste, within the scope of the ABPR (unless the ABPR specifically seeks to apply trans-frontier shipments rules to particular mixtures, which it does in relation to certain mixtures of ABPs and hazardous waste).
81. Nor is there any minimum threshold as regards the proportion of ABPs present in a mixture of ABPs and waste – it appears that the presence of any ABPs is enough to transform the mixture as a whole into an ABP.
82. Although strictly dealing with trans-frontier shipments of waste, the case is nevertheless useful in reminding us that if the legislation very clearly indicates which regime is to apply (i.e. ABPR rather than WFD), the ECJ will see no basis for departing from that.

---

<sup>27</sup> Joined Cases C 21/19 to C 23/19, Criminal proceedings against XN (C 21/19), YO (C 22/19), and P.F. Kamstra Recycling BV (C 23/19)

## CONCLUSIONS ON EOW and "end of ABP

83. We would summarise as follows:-

83.1. 'ABP' and 'Waste' status are independent of each other in the sense that an ABP need not be Waste, and the two are not regulated simultaneously, in that the ABPR (if applicable) will generally apply, and the WFD may step in if required upon ABPR controls ceasing.

83.2. "Waste waters" are excluded from the scope of WFD (and therefore also EOW) to the extent covered by other legislation (principally UWWTD), but not all waste waters necessarily undergo UWWTD processes, and EOW may therefore be available.

83.3. Materials resulting from the treatment of waste waters, such as sewage sludge, can undergo EOW.

83.4. Materials resulting from incineration of waste or incineration of ABPs are no longer ABPs or ABP Derived Products and can undergo EOW.

83.5. Materials resulting from other authorised treatment of ABPs are likely to continue to be subject to the ABPR (to the exclusion of the WFD and EOW) until such time as they are determined to be of sufficiently low risk as to permit the removal of ABPR controls.

83.6. ABPs and derived products destined for feed can only 'escape' ABPR controls by complying with Article 31 (which does not permit Cat.2 as input), but there may be scope for using materials extracted from incineration ash subject to achieving EOW for those.

83.7. Derived products not intended for feed or land application may reach their ABP end point under Article 36 (but requiring further Commission intervention to determine that end point).

83.8. Where no end point has been determined (or stated to be determinable) for other outputs from the various Article 13 processes, it is unsafe to assume that these are unregulated, as there is (unlike the EOW test) no objective legal test that can be satisfied

84. Looking specifically at algae produced in different ways according to the above statements we would offer the following conclusions:-

84.1. For algae grown in untreated municipal and industrial wastewaters (where those waste waters would be expected to be regulated under UWWTD), the difficulty is that the waste waters themselves, prior to any treatment, cannot benefit from EOW (as UWWTD "waste waters" are excluded from the scope of WFD, including the EOW aspects). It would be necessary (and probably relatively easy) to demonstrate that algae deliberately grown from waste waters are legally distinct from the waste waters themselves, and that the algae should justifiably be regarded as part of the recovery, treatment or processing of the waste waters, and as a product of that process, and susceptible to EOW.

84.2. Algae grown in treated municipal and industrial wastewaters would not be excluded from the scope of the WFD and would be susceptible to EOW whereby a suitable legal test could be developed to allow the algae to be regarded as a new non-waste product. We consider (as *per* the paragraph above) that this would remain the case if the algae were being grown with the intention of further treating the wastewater<sup>28</sup>.

84.3. For algae grown in untreated manure/slurry, as noted above such manure would be a Cat.2 ABP which would have to be dealt in one of the ways

---

<sup>28</sup> We understand that ESPP have been advised informally by certain Commission staff that such algae should not be classified as Waste because it is produced deliberately. We anticipate that the Commission may balk at committing themselves to that position in writing, as such a position appears to conflict with ECJ pronouncements about the nature of waste. In general terms, if you manufacture something from scratch then you clearly haven't discarded it, and it isn't waste. But the complication comes where your raw materials are already classified as Waste. The saying that one man's trash is another man's treasure has been disavowed by the ECJ who take the view that once something is "waste", you generally need to engineer your way out of that classification via EOW (unless of course the EOW route is blocked because of WFD exclusion, ABP status etc.)



set out in Article 13 ABPR (or have a new use devised for it under Article 20). Use as a growth medium for the production of algae would not readily fall under any of the outcomes for Cat.2 ABPs listed in Article 13, except arguably the 13(d) use for manufacturing of organic fertilisers or soil improvers, or use for the manufacture of derived products (with the algae arguably meeting the 'derived product' definition of a product obtained from one or more treatments, transformations or steps of processing of animal by-products). On that analysis, the algae would require to leave ABPR controls only in accordance with a Commission-defined end point.

84.4. For algae grown in treated manure (e.g. manure digestate), whilst the manure itself may have undergone a process recognised by Article 13 ABPR (e.g. composting or transformation into biogas), there is no automatic end point for ABPR controls [unless falling under regulation 2023/1605], and algae grown from manure digestate would therefore likely be regarded as a "product obtained from one or more treatments, transformations or steps of processing of animal by-products" i.e. as a derived product which might reach its ABP end point under Article 36 (but with that requiring further Commission intervention).

### ***Some Questions and (suggested) Answers***

85. Some of the above issues may be better illustrated with some questions and answers based on various practical scenarios, as follow below.

86. Question: *Why are crops grown in a field which has had manure applied to it not ABPs?*

Suggested Answer: The application of the manure to the land would be a use of the ABP recognised by Article 13(f) [i.e. "applied to land without processing, in the case of manure....which the competent authority does not consider to present a risk for the spread of any serious transmissible disease"]. It should be noted [see underlining] that applying manure to land under Article 13(f) is ONLY automatically lawful where the risk of serious transmissible disease being spread is already acceptably low. If it were otherwise, and the Commission wished to step in and restrict those practices, they would appear to have power to do so under the Implementing Measures. In the case of Article 13(f) the wording

of the legislation itself is a pointer to the fact that ABPR controls can fly off, as the level of risk allows for that and is an integral part of the permitted use. The use of manure for land spreading, effectively as a fertiliser, appears to be a final use rather than a “treatment, transformation or step of processing”, and the crops cannot therefore be regarded as derived products. The grown crops do not therefore meet the definition of either an ABP or a DP and are therefore not regulated by ABPR. Nor, unless and until they are discarded, are they Waste.

87. Question: *If manure were to be added to an algae growth substrate, in effect fertilising it, would it have the same legal status as crops grown in a field where manure has been spread?*

Suggested Answer: Possibly, so long as the process somehow involved the manure being applied to land. Article 13(f) does not mention crops and merely refers to manure being “applied to land”. As already noted, applying to land is only acceptable under Article 13(f) if the competent authority does not consider the application to land to present a risk for the spread of any serious transmissible disease. There may therefore be scope for agreeing matters with the competent authority.

88. Question: *Could I buy a manure-based commercial fertiliser and use it to grow algae?*

Suggested Answer: Probably yes, on the basis that the fertiliser has already passed the stages of being produced, labelled and sold in compliance with the ABPR, with the result that it is sold without ABPR controls regulating its use (and assuming that use for that purpose was not, and did not become, expressly prohibited).

89. Question: *What would be the status of algae fed with industrial waste gases?*

Suggested Answer: Assuming that the algae is not grown in or fed liquid wastewater, waste or manure, waste controls are likely to be applicable (but with EOW also then being an available option) in relation to algae fed with industrial waste gases such as CO<sub>2</sub> from a cement kiln or NO<sub>x</sub>/ SO<sub>2</sub> from an industrial chimney. Whilst “gaseous effluents emitted into the atmosphere” are excluded from the scope of the WFD, the same will not be true of gases which have been captured for reuse or processing prior to reaching the stage of being emitted into the atmosphere. Given that they may contain other contaminants such

as dust particles or dioxins, it seems likely that waste controls would be engaged. The absolute exclusion from WFD/EOW does not therefore apply to "captured" gases, for which EOW would be possible. Accordingly, it would appear that if you were to process manure in a digester, and capture the CO<sub>2</sub>, and seek to use it to grow algae, then EOW should be available to you. (The ABPR position is different for gases in that gases are not ABPs as defined in 1069/2009<sup>29</sup> e.g. where algae are grown using nitrogen present (as ammonia) in stable off-gases or in gases extracted from manure storage or manure processing.)

90. Question: *Why, if algae grown from sewage sludge is regarded as waste, are crops grown from sewage sludge spread on land not regarded as waste?*

Suggested Answer: The most likely explanation is that the spreading of the sludge to land would be regarded as either "disposal" [e.g. under Annex I D2 of the WFD] or "recovery" [e.g. under Annex II R10 of the WFD], with the result that the waste tag flies off<sup>30</sup> upon the waste being disposed of or recovered. Alternatively it may well be EOW 'on the nod', in the sense that the regulators are satisfied that the sludge is suitable for use, fulfils the appropriate technical requirements, and won't harm the environment. On either analysis, there could be no continuing waste 'taint' affecting the growing crops, as the sludge ceased to be waste upon being spread to land.

91. Question: *How should one regard materials such as reeds (phragmites, for roof thatch) grown in sewage (e.g. where reedbeds have been used as the main treatment in small sewage works), or trees (wood for timber) grown in sewage sludge or in treated wastewater (as for algae ponds, this can be a "finishing" step for wastewater treatment)?*

Suggested Answer: All are likely to be susceptible to the EOW test. It is worth bearing in mind that whilst on occasion (perhaps on most occasions) the EOW process might prove to be somewhat tortuous in terms of satisfying regulatory concerns, there are nevertheless other times when it will be relatively easy. It largely depends on the potential for harm and

---

<sup>29</sup> This has been confirmed by the European Commission in the Fertilising Products Regulation FAQ Q8.39 available at <https://ec.europa.eu/docsroom/documents/54694>, and in "Technical proposals for by-products and high purity materials as component materials for EU Fertilising Products" available at [https://publications.jrc.ec.europa.eu/repository/bitstream/JRC128459/JRC128459\\_01.pdf](https://publications.jrc.ec.europa.eu/repository/bitstream/JRC128459/JRC128459_01.pdf) at page 37 paragraph 8.1.2

<sup>30</sup> It is open to the authorities to decide that a particular disposal or recovery activity should itself be further regulated because of ongoing environmental impacts e.g. waste sent to landfill is disposed of as a "deposit into land" but that activity continues to be regulated, so disposal or recovery does not always imply the end of all waste controls.

the attitude of the regulator towards adverse impacts. An example given by one regulator refers to fuel which has been discarded by someone. It is therefore "waste". However the complete recovery process/EOW might be as simple as checking that the discarded fuel has no impurities (compared to non-waste fuel), and at that point – as if a magic wand has been waved – it is no longer waste. A quick visual check might of itself constitute a 'complete recovery process'. Such a 'light touch' approach may well be appropriate with materials such as reeds or trees grown from treated sewage.

92. Question: *Compost, digestate or processed manure meeting the criteria of Regulation 2023/1605 and which are used as component materials in EU fertilising products are entitled to an end point under that regulation, but if they are first used as a substrate to grow algae, which are then used in fertiliser production, would the end point still apply?*

Suggested Answer: Probably not, as Regulation 2023/1605 Article 1 confines the end point to the materials themselves which are used "as component materials in EU fertilising products in accordance with Regulation 2019/1009". The recitals also refer to various EFSA opinions, and if algae have not been considered within those opinions then it is unlikely that a court interpreting that regulation would allow algae to 'piggyback' upon the end point.

93. Question: *If manure is subjected to an Article 13(e) process ("composted or transformed into biogas") which produces digestate, which is then used as a substrate to grow algae, would the algae be a derived product and would there need to be an end point?*

Suggested answer: The manure has undergone a process recognised by Article 13, but the algae would likely meet the definition of a derived product, and would continue to be subject to ABPR controls until an Article 36 end point (or an Article 20 alternative method) is agreed.

94. Question: *Could algae production be considered part of the "treatment" of the manure and dealt with in some form of wastewater treatment plant?*

Suggested answer: Unlikely, in the absence of agreement for an Article 20 alternative method of using the ABPs and DPs. Manure is a Cat.2 ABP and remains subject to ABPR controls until such time as it is released from them.

95. Question: *Could manure digestate meeting the Implementing Regulation 142/2011 criteria be used as input to a pyrolysis process producing biochar, which is then used in an EU fertilising product? FPR CMC14 art.4 says you can use cat.2-3 materials as inputs if an end point has been determined. 2023/1605 determines an end point for such compost/digestate, but specifies in 2023/1605 art3 that this endpoint is "as organic fertilisers and soil improvers" (not "as inputs for production of ...").*

Suggested Answer: Probably not, as no end point has been determined for digestate being used in a pyrolysis process producing biochar. On the face of it, it is the materials and their own direct use as component materials in EU fertilising products which benefit from the end point.

### **CONCLUSIONS ON ALGAE**

- Algae or other aquatic plants grown in waste or wastewater, or using a waste or wastewater as input (including gases if these are classified as "waste") have waste status, unless EoW is obtained, irrespective of whether or not the algae growth process is part of wastewater treatment or whether it serves only to produce algae.
- This is not the case for crops grown on land where waste (e.g. sewage sludge or industrial sludge) or wastewater is spread, because the spreading is the final disposal of the waste (and so is subject to monitoring, spreading plans etc, to ensure environmental safety).
  - Thus, reeds or other plants grown in a reedbed used for final clarification of wastewater treatment will have waste status unless EOW is obtained (as they are part of a continuing waste process for which the final disposal is discharge of the clarified wastewater to the environment).
  - Algae or other aquatic plants grown in an ABP substrate (e.g. manure) are an "ABP Derived Product" EXCEPT if the substrate is a compost or digestate processed according to the ABP parameters (142/2011) and which has achieved an end point - in which case the ABP is considered to have been disposed of, and to have moved

beyond ABPR controls. Algae grown from a compost or digestate which is no longer regulated by ABPR would equally not be considered an ABP or DP.

- Similarly, as for waste above, crops grown on land on which is used either manure (as specified in Article 13(f)) or ABPs authorised for use in fertilising products (as per Article 13(d)) will not be an ABP/Derived Product
  
- If the algae/aquatic plants are ABP Derived Products, then they can only be used in fertilising products under the same restrictions as for ABPs of the category 2 or 3 of which they originated, that is
  - composted or digested under 142/2011 parameters, in which case they could be used in EU fertilising products under CMCs 3 and 5
  - could only be used in EU fertilising products if an ABP End Point has been defined (which is not currently the case) – for example algae grown in manure, which is an ABP DP, cannot be used under the EU Fertilising Products Regulation CMC2, because no corresponding ABP End Point has been defined (irrespective that this is not specified in CMC2).
  
  - used as inputs to the production of national fertilising products, subject to national authorisation, monitoring, traceability etc.
  
- The above leads to the conclusion that algae/aquatic plants grown in non-ABP waste can today be used in EU fertilising products (under the conditions of CMC2\*) but that algae grown in ABPs (including manure) cannot be used in EU fertilising products (unless and until a specific ABP End Point has been defined). Nonetheless, algae grown in ABP-parameter digestate (142/2011 parameters) can be used in EU fertilising products (under CMC2) and algae grown in ABPs can be used as input to CMC3/5 compost/digestate where the composting/digestion process achieves the ABP End Point (142/2011 parameters)

(\* The European Commission has indicated that plant materials (including algae) with “waste” status can be used in EU fertilising products under CMC2, if other

relevant conditions are respected. Reference: EU COM FAQ on the FPR, question Q8.22 (<https://ec.europa.eu/docsroom/documents/54694>)

- Algae grown in ABP "Processed manure" (sterilised as per 142/2011) cannot be used in EU fertilising products, because such processing is not disposal (cf list in 2069/2009 art13). However, if ABP "Processed Manure" is used as an organic fertiliser which has reached its end point (either under national fertilising products regulations or under FPR CMC10) to assist the algae growth (that is added to a growth substrate of non-ABP wastewater), then the algae would not be considered an ABP/Derived Product (applying the same logic as crops in fields). However, for this to apply, the "Processed Manure" must have been validated as a fertilising product under national or EU regulation.

96. The reality is that Waste-derived or ABP-derived algae, while representing an innovative technology, has to be able to demonstrate why and when those controls should cease to apply. Such are the consequences of using either Waste or ABPs as the feedstock, since both of those are subject to detailed legislation aimed at, respectively, [in the case of Waste] protecting the environment and human health by preventing or reducing the adverse impacts from the management of waste<sup>31</sup> and [in the case of ABPs] preventing and minimising risks to public and animal health arising from ABPs and derived products.<sup>32</sup>

### **III – Restrictions under AFR**

97. Assuming you have achieved either EOW status, or "end point in the manufacturing chain" under ABPR, we will now move on to consider potential restrictions under AFR. (As already noted, there would be obvious difficulties in trying to use manure-derived materials for feed, given that ABP end-point requirements for feed under Article 31 permit only derived products from certain Cat.3 materials, while manures are Cat.2)

#### ***AFR Prohibitions – (i) UWWT waste***

---

<sup>31</sup> WFD Article 1

<sup>32</sup> ABPR Article 1

98. The AFR provides at Article 6 that "**Feed shall not contain or consist of materials whose placing on the market or use for animal nutritional purposes is restricted or prohibited**", with the list of such materials being contained in Annex III.

99. Paragraph 5 of Annex III details one of the prohibited materials and is in the following terms:

"All waste obtained from the various phases of the treatment of the urban, domestic and industrial waste water [...<sup>33</sup>], , **irrespective of any further processing of that waste** and irrespective of the origin of the waste waters." [**underlining emphasis added**]

100. On the face of it, the provision clearly threatens to scupper the use in animal feed of anything recovered from UWWT-related waste, since any outputs from waste processing might be regarded as "further processing". However, a preferable argument, for the reasons set out below, is that the prohibition only applies to materials which retain their status as 'waste', allowing for the possibility of products which have achieved the status of "end of waste" not being caught by the prohibition.

#### *History of the AFR 'waste water' prohibition*

101. As EU law is interpreted purposively, taking into account the aims of the legislation in question, it is useful to consider the evolution of the prohibition and the underlying policy drivers.

102. The wording of paragraph 5 of the AFR Annex has featured, with some modifications, in EU legislation since 1991, with the various main iterations being as set out in the following table:

Decision 91/516/EEC, Annex Pt. 5	5. Sludge from sewage plants treating waste waters
Commission Decision of 5th April 2000, amending Decision 91/516/EEC	5. All wastes obtained from the various phases of the urban, domestic and industrial waste water treatment process, irrespective of any further processing of these wastes and irrespective also of the origin of the waste waters.

<sup>33</sup> as defined in Article 2 of Council Directive 91/271/EEC of 21 May 1991 concerning urban waste water treatment. The UWWT Directive contains separate definitions of "urban waste water", "domestic waste water" and "industrial waste water". Its aims are to protect human health and the environment from the effects of untreated urban wastewater by requiring the collection and treatment of wastewater in all urban areas of more than 2000 people, and requiring secondary treatment of all discharges from urban areas of more than 2000 people.



Commission Decision 2004/217/EC, repealing 91/516/EEC	5. All wastes obtained from the various phases of the urban, domestic and industrial waste water as defined in Article 2 of Council Directive 91/271/EEC treatment process, irrespective of any further processing of these wastes and irrespective also of the origin of the waste waters.
AFR 767/2009	5. All waste obtained from the various phases of the urban, domestic and industrial waste water as defined in Article 2 of Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment, irrespective of any further processing of such waste and irrespective also of the origin of the water.
Amended by Commission Regulation (EU) No 568/2010 of 29 June 2010	5. All waste obtained from the various phases of the treatment of the urban, domestic and industrial waste water, as defined in Article 2 of Council Directive 91/271/EEC of 21 May 1991 concerning urban waste water treatment, irrespective of any further processing of that waste and irrespective of the origin of the waste waters

103. As can be seen, the major innovation took place in 2000, and the recitals to the 2000 Commission Decision are instructive in identifying the reasons behind that change. So far as relevant, they were as follows:-

(3) Experience has proven the need to improve the safety of feed materials used in animal nutrition for public and animal health reasons, in particular in the light of recent reports of use in animal nutrition of sludge from plants treating waste waters.

**(4) No waste collected during and/or resulting from the various phases of the wastewater treatment process (physical, chemical and biological) can be considered as an acceptable source of animal feed, irrespective of any further processing of these wastes and irrespective also of the origin of the waste waters.**

(5) Although Decision 91/516/EEC prohibits the use of sludge from sewage plants treating waste waters as feed materials in compound feedingstuffs, it does not define the terms 'sludge' or 'sewage'. It is therefore desirable to clarify the text indicating that the prohibition not only applies to the sediments of the 'biological treatment' but also to other wastes collected during the pre-treatment as well as other physical and chemical treatments of the waste water. Moreover it is necessary to point out that the word 'sewage' does not refer only to waste water from municipal effluents but also to other waste water, including those from animal product processing plants' own water treatment plants.

104. The term “further processing” is not a defined term, and the recitals do not identify any particular “further processing” of UWWT waste which had proved problematic. Rather, the recitals refer only to reports of “sludge” from wastewater treatment plants being used in animal nutrition. The above recital 5 makes it clear that the expanded wording to be inserted into paragraph 5 is intended to be, in effect, a definition of “sludge”, with the aim of clarifying that “sludge” should not be restricted to the sediments from biological treatment, but is to include other physical and chemical treatments of the waste water.
105. As a result, the particular material which is prohibited in feed by virtue of paragraph 5 is [UWWT] “waste”, irrespective of any further processing of “that waste”. The essential characteristic appears to be that the material is, and remains “waste” (even after the “further processing”).
106. It should also be noted that the prohibition relates to all waste “obtained **from the various phases of the treatment** of the urban, domestic and industrial waste water”. The obviously supportive argument is that once sewage sludge has been transformed into, say, ash by way of incineration, the “treatment” is at an end. If someone proceeds thereafter to carry out further processing or materials-recovery in relation to that ash, then such ‘post-ash’ processing can hardly be said to be part of a phase of treatment of urban waste waters.
107. More fundamentally, a material cannot be “waste” for the purposes of the AFR prohibition if it has ceased to be “waste” (e.g. by way of EOW, such that it has become a new product which has left the waste chain). To suggest otherwise (as the Commission has done)<sup>34</sup> is simply perverse.
108. The Commission in fact doubles down in the DG Sante reply of 3rd April 2024 to ESPP’s question about the possible use as animal feed of algae or aquatic plants grown using municipal wastewater as a substrate, or of materials extracted from such algae or aquatic plants. Their reply is as follows:

---

<sup>34</sup> And yet is exactly the position adopted by the Commission e.g. in the DG Sante reply of 9<sup>th</sup> September 2022 to the European Sustainable Phosphorus Platform, in which they acknowledge that nutrients may be recovered from sewage sludge but do not allow their analysis to progress beyond the assertion that “feeding of waste [sic] to farmed animals is prohibited”.

“Considering that the algae / aquatic plants would be contaminated by the proposed substrates and in the light of recitals 3 and 4 of Commission Decision 2000/285/EC [**see paragraph [103] above**], we see no possibility to consider the use in animal nutrition of such algae/aquatic plants nor of material extracted from them.”

109. There is simply the declared assumption that the algae would be “contaminated”, but for all of the reasons set out above we are of the view that the Commission is simply wrong, and in danger of failing to keep up with, or arguably even to consider, the most recent scientific and technical knowledge, and thereby threatening to scupper businesses keen on developing the circular economy.

110. In such circumstances, the same considerations referred to at paragraph [50] above would apply, if the intransigence of the authorities amounted, without justification, to an obstacle to enabling the development of a circular economy. To assert that a non-waste is a waste, or that there is a rule that “once contaminated, forever contaminated” is an unjustifiable attempt at redefining, rather than interpreting, the relevant statutory words.

#### ***AFR Prohibitions – (ii) Faeces etc***

111. The other provision within AFR Annex III of potential concern is paragraph 1 which says:

[Feed shall not contain:]

“Faeces, urine and separated digestive tract content resulting from the emptying or removal of digestive tract, irrespective of any form of treatment or admixture.”

112. The obvious concern is that algae grown using manure/slurry as a substrate might be thought to be caught by the above provision.

113. The wording has featured since at least Commission Decision 91/516/EEC, which established a list of ingredients whose use was prohibited in compound feedingstuffs, and thereafter extended to feedingstuffs by Commission Decision of 1 March 2004, and then reiterated in the AFR.

114. There is little academic or judicial discussion about what the words mean or the underlying policy justification, which is probably because the thing speaks for itself: clearly one cannot use faeces as animal feed.
115. The question is whether algae grown from manure as a substrate would be squarely caught by the above prohibition. In particular, would such algae qualify as “faeces”, and (if not) would its production be seen as “treatment or admixture” of faeces?
116. The answer to both questions would appear to be ‘No’. The algae would be a material grown from the substrate, but algae is self-evidently not the same thing as farmyard slurry. Nor is the algae the result of faeces being mixed, or “treated”. Rather, it is a new product, derived from waste, with completely different characteristics. It is, accordingly, neither “faeces”, nor “mixed faeces”, nor “treated faeces”. (Nevertheless, the fact that such algae would not be prohibited by paragraph 1 of Annex III to the AFR may be academic, given that the manure itself is a Cat.2 ABP which, according to ABPR Article 13, shall be disposed of or used by one of the methods set out in that Article.)
117. (In passing, it should be noted that similar considerations would apply in relation to the definition of “livestock manure” in the Nitrates Directive<sup>35</sup> (which limits the amounts of livestock manure applied to land), namely, “*waste products excreted by livestock or a mixture of litter and waste products excreted by livestock, even in processed form*”. We cannot see any basis for treating algae grown from manure or crops grown after spreading manure as being the same as processed excreta from livestock, as you are dealing with an entirely new and fundamentally different material. The same would be true of the situation where e.g. ammonium salts are recovered by ‘scrubbing’<sup>36</sup> of off-gases from manure storage, manure treatment or manure digestate, in that such recovered salts could not reasonably be regarded as simply ‘processed excreta’.)

### ***AFR Prohibitions – (iii) Solid urban waste***

---

<sup>35</sup> The Nitrates Directive (91/676/EEC) aims to improve water quality by protecting water against pollution caused by nitrates from agricultural sources.

<sup>36</sup> i.e. taking air which contains ammonia and NOx (e.g. from a covered manure tank or air deliberately bubbled through digestate) and bubbling it through acid (e.g. sulphuric acid) so trapping ammonia salts in solution (ammonium sulphate solution).

118. Annex III also provides that feed shall not contain:

***"6. Solid urban waste [but not catering waste], such as household waste."***

119. There is no guidance within the AFR on precisely what is meant by "solid urban waste", but it would appear to be generally synonymous with "Municipal Solid Waste". It would clearly apply to the typical wastes collected from domestic and commercial premises in an urban setting. Indeed, "household waste" is given in AFR Annex III paragraph 6 as an example of what is prohibited. The related question is whether the prohibition would continue to apply to the residues resulting from the incineration or other treatment of that waste, which it might be argued are still "solid", at least in the state-of-matter sense of being neither a liquid or a gas. Might such residues still qualify as "solid urban waste"?

120. Some interpretive assistance may be derived from the WFD, which introduced<sup>37</sup> a definition of "municipal waste"<sup>38</sup> by virtue of Directive 2018/851. As can be seen from the footnoted definition, there is no suggestion of the definition extending to anything other than the waste in its original form, pre-processing (other than sorting for the purposes of separate collection), and certainly not extending to the residues left after waste treatment, still less to materials extracted from those residues.

121. In the context of the inter-relationship between different pieces of legislation including UWWTD, AFR, and WFD, the choice of words used in AFR Annex III paragraph 6 would suggest no intention for its terms to be extended to the "residues" resulting from waste treatment, with the result that fully recovered products could not be said still to qualify as "solid urban waste" and to be caught by that particular prohibition.

---

<sup>37</sup> as part of new provisions relating to recycling targets

<sup>38</sup> In Article 3(2b) which is in the following terms:

*'municipal waste' means:*

*(a) mixed waste and separately collected waste from households, including paper and cardboard, glass, metals, plastics, bio-waste, wood, textiles, packaging, waste electrical and electronic equipment, waste batteries and accumulators, and bulky waste, including mattresses and furniture;*

*(b) mixed waste and separately collected waste from other sources, where such waste is similar in nature and composition to waste from households;*

*[footnote 29 continued] Municipal waste does not include waste from production, agriculture, forestry, fishing, septic tanks and sewage network and treatment, including sewage sludge, end-of-life vehicles or construction and demolition waste.*

***Taking things forward***

122. As the Commission regularly remind us, they cannot rule on matters of legal interpretation, which are solely the responsibility of the Court of Justice. They can, of course, also (a) form their own somewhat entrenched views and (b) influence and initiate the procedures for legislative changes.
123. We have already noted questionable responses from the Commission at paragraph [107 and footnote 33] above.
124. There will therefore be merit in seeking clarification from the Commission as to whether they agree with the above legal analysis, and for them to be invited to explain by way of rebuttal and in suitable detail "if not, why not".

[ ] 2024.

**This is the Opinion of:**

**Barry Love, LL.B (Hons), LL.M (Environmental Law), Dip.L.P, Solicitor,**

**Accredited (continuously since 2006) by the Law Society of Scotland as a specialist in Environmental Law**

## **ANNEX I**

(NB. Those provisions labelled "M4" are amendments introduced by the 2018 Directive, while those labelled "B" are from the original 2008 WFD.)

### *Article 6*

#### *End-of-waste status*

##### **▼M4**

*1. Member States shall take appropriate measures to ensure that waste which has undergone a recycling or other recovery operation is considered to have ceased to be waste if it complies with the following conditions:*

*(a) the substance or object is to be used for specific purposes;*

##### **▼B**

*(b) a market or demand exists for such a substance or object;*

*(c) the substance or object fulfils the technical requirements for the specific purposes and meets the existing legislation and standards applicable to products; and*

*(d) the use of the substance or object will not lead to overall adverse environmental or human health impacts.*

##### **▼M4**

*2. The Commission shall monitor the development of national end-of-waste criteria in Member States, and assess the need to develop Union-wide criteria on this basis. To that end, and where appropriate, the Commission shall adopt implementing acts in order to establish detailed criteria on the uniform application of the conditions laid down in paragraph 1 to certain types of waste.*

*Those detailed criteria shall ensure a high level of protection of the environment and human health and facilitate the prudent and rational utilisation of natural resources. They shall include:*

*(a) permissible waste input material for the recovery operation;*

*(b) allowed treatment processes and techniques;*

*(c) quality criteria for end-of-waste materials resulting from the recovery operation in line with the applicable product standards, including limit values for pollutants where necessary;*

*(d) requirements for management systems to demonstrate compliance with the end-of-waste criteria, including for quality control and self-monitoring, and accreditation, where appropriate; and*

*(e) a requirement for a statement of conformity.*

*Those implementing acts shall be adopted in accordance with the examination procedure referred to in Article 39(2).*

*When adopting those implementing acts, the Commission shall take account of the relevant criteria established by Member States in accordance with paragraph 3 and shall take as a starting point the most stringent and environmentally protective of those criteria.*

*3. Where criteria have not been set at Union level under paragraph 2, Member States may establish detailed criteria on the application of the conditions laid down in paragraph 1 to certain types of waste. Those detailed*

*criteria shall take into account any possible adverse environmental and human health impacts of the substance or object and shall satisfy the requirements laid down in points (a) to (e) of paragraph 2.*

*Member States shall notify the Commission of those criteria in accordance with Directive (EU) 2015/1535 where so required by that Directive.*

*4. Where criteria have not been set at either Union or national level under paragraph 2 or 3, respectively, a Member State may decide on a case-by-case basis, or take appropriate measures to verify, that certain waste has ceased to be waste on the basis of the conditions laid down in paragraph 1 and, where necessary, reflecting the requirements laid down in points (a) to (e) of paragraph 2, and taking into account limit values for pollutants and any possible adverse environmental and human health impacts. Such case-by-case decisions are not required to be notified to the Commission in accordance with Directive (EU) 2015/1535.*

*Member States may make information about case-by-case decisions and about the results of verification by competent authorities publicly available by electronic means.*

▼M4

*5. The natural or legal person who:*

*(a) uses, for the first time, a material that has ceased to be waste and that has not been placed on the market;*  
*or*

*(b) places a material on the market for the first time after it has ceased to be waste,*  
*shall ensure that the material meets relevant requirements under the applicable chemical and product related legislation. The conditions laid down in paragraph 1 have to be met before the legislation on chemicals and products applies to the material that has ceased to be waste.*