



EUROPEAN WATER ASSOCIATION

RESPONSE TO THE EC WORKING DOCUMENT ON SLUDGE AND BIOWASTE 21 SEPTEMBER 2010

INTRODUCTION

¹ The European Water Association, the EWA, welcomes the opportunity to respond to the European Commission's "Working Document Sludge and Biowaste 21 September 2010, Brussels".

² The EWA comprises 25 national associations with members engaged as academics, regulators, consultants, and utility managers, technology providers in the provision of clean water for all for ever. It also comprises 20 corporate members: companies, institutes, associations.

SLUDGE AND BIOWASTE

³ We support the principles outlined in the Waste Thematic Strategic and the long term vision to make Europe a recycling society that decouples economic growth from increased waste generation. We therefore believe that issues associated with the Sludge Directive must facilitate and continue to encourage recycling of treated sewage sludge (biosolids) for use on land.

⁴ However we do not believe that the current Directive on the use of sewage sludge is outdated. The age of the Directive does not preclude its relevance. The EWA has not observed any evidence in practice which would support this view.

⁵ We are concerned that limits may be set that encourage disposal and discourage practices higher in the waste hierarchy. We agree with the sentiments set out in the Thematic Strategy on Soil i.e. to ensure that maximum benefit is reaped from the reintroduction of nutrients while further limiting the release of dangerous substances into the soil.

⁶ We believe that the extension of the Sewage Sludge Directive to incorporate bio-waste is a natural progression. However, it is imperative that any standards/limits that are set are based upon the relevant waste type. Standards/ limits for sewage sludge should not be compromised by the application of unrealistic standards that are deemed only applicable to bio-wastes.

⁷ We note the concept of "End of Waste" criteria for the unrestricted use of sludge compost and digestate. We have not yet determined a consensus view on what these



criteria should be. We do take the view, however, that for most practical operations, managing the treated sewage sludge product of waste water treatment (i.e. biosolids) will focus on the practices which will be regulated by the Directive. The burden of meeting the end of waste criteria is likely to outweigh the benefits of removing regulatory restrictions.

⁸ Although we are in general agreement with the need to better regulate biowastes, we have a number of concerns, which we explain below.

METAL LIMITS

⁹ The proposed sludge limit values appear to originate from CEC (2000), and therefore, they seem reasonable. They reflect the improved chemical quality of sludge and are unlikely to have a significant impact on sludge recycling in Europe in general.

¹⁰ Directive 86/278/EEC set a range of maximum permissible limit values for metals in soil enabling Member States to select an appropriate regime of soil standards, in order to take account of local circumstances particularly, for example, the natural geogenic properties and background metal content of soil within an individual country. This flexible approach to regulating sludge is regarded as one of the major strengths of the current Directive. However, the proposals move away from the flexible and pragmatic measures adopted in the original Directive and therefore have serious and major limitations. A number of fundamental scientific problems exist with the proposed numerical values. In particular, the proposed metals limits in soil should incorporate basic principles of soil chemistry that fundamentally influence the behaviour and bioavailability of metals in soil. For example, Cu, Pb, Hg and Cr are tightly bound and immobile in soil and their availability is not influenced by the soil pH value. Therefore, there is no technical reason to have pH related limit values for these elements in sludge-amended soil.

¹¹ The current Directive permits individual Member States to develop national controls on metals appropriate to local circumstances. The Member States in which our members work, have conducted controlled environment and field research to underpin national statutory limits for metals within the framework of controls stipulated by the Directive. The flexible requirements of the Directive relating to metals recognise that conditions differ between Member States. Soil mineralogies differ significantly throughout Europe. Recognising the need for flexibility in the metals limit values is an essential and fundamental concept that was successfully implemented through the current Directive. However, the proposed changes to the metals limits described appear to ignore this critical feature.

¹² Table 4 of the Consultation document shows proposed annual limit values for metals and the current limit under the Sludge Directive. Of concern is the magnitude of the proposed reduction which in some cases is a 15 fold reduction. In the evidence which we have provided previously, such as the conclusions of the Conference in Pembroke College Cambridge UK in April 2007, we have not found evidence supporting the need for this level of proposed reduction.



¹³ We believe that significant tracts of farmland which are being used successfully now would be excluded from further use by these proposals

SUMMARY – METALS

¹⁴ Upper maximum soil limits for metals are well defined and are based on 30 years of field and laboratory research. The concentrations of Ni, Cr, Hg and Pb in sludge have declined to such an extent that they no longer pose a risk to human health or the environment from the agricultural recycling of sludge - the regulatory regime on metals in a revised Directive could therefore be further simplified by removing these elements from the statutory list of regulated elements. The maximum limits proposed in the soil are lower than scientifically derived values and would significantly constrain sludge recycling to farmland in Europe. The rationales behind the basis for the proposed soil metals criteria are uncertain. Directive 86/278/EEC provided Member States with the flexibility necessary to set national standards for metals in soil appropriate to the local conditions, to take account for instance of variations in background soil metals content. However, this key feature has been lost from the proposals on metals. Overall the metals criteria are more stringent than is scientifically justified and they do not recognise the need for flexibility in setting soil standards in different Member States to take account of local circumstances. The increased stringency and reduced flexibility will have a negative impact on recycling sewage sludge in agriculture but this will not result in any beneficial effects for human health or the environment in general.

ORGANIC CONTAMINANTS

¹⁵ The concentrations of traditional persistent organic pollutants (POPs) in sludge, notably PCDD/Fs, PCBs and PAHs have declined significantly in response to effective source controls imposed through European environmental legislation. Research has shown that the consequences of these substances in sludge and amended soil for human health are negligible. Therefore, the EC JRC recommended that the routine monitoring of PCDD/Fs, PCBs and PAHs in sludge used for agricultural purposes was unnecessary (Erhardt and Prueß, 2001). This is echoed in the Working Document (section 6) which quotes from the Millieu/WRC/RPA study for the EC that “*significant environment or health risks linked to the use of sewage sludge on land in the EA have not been documented in scientific literature since the Directive took effect*”. Despite this, the EC proposal in Table 2 is that PAHs (or specifically benzo-a-pyrene) should not exceed 0.4-0.8 mg kg⁻¹ DS in sludge. No justification is offered as to why this limit should be introduced, nor as to why benzo-a-pyrene should be singled out from the array of PAHs present in the environment. Carefully performed pathways analyses also show that sludge addition to land is a minor source of PAH contamination in soil when compared to atmospheric deposition originating from traffic, power stations etc. and that there are no risks to the food chain at the loadings typically applied. Nevertheless, a significant proportion of European sludges would fail to comply with the proposed limit. From the evidence available in the literature it is likely that typical sewage sludges from every country and every survey are likely to exceed the EC’s proposed standard. It is



therefore likely that implementation of this standard would result in the cessation of a very substantial proportion of all sewage sludge applications to agricultural land in the EU with no benefit for human health or the environment.

SUMMARY – ORGANIC CONTAMINANTS

¹⁶ The key scientific evidence demonstrates that there is no technical case or justification for including organic contaminants in a revision of Directive 86/278/EEC. Despite this, EC Working Party proposes a limit for PAH which would be highly restrictive to sludge recycling in Europe. For example, in the UK, a recent survey of sludge composition completed in 2010 indicated that 100 % of sludge samples would not meet the suggested 0.4 mg/kg standard for PAH and 60% would not meet the 0.8 mg/kg standard. This measure would therefore have major consequences for sludge management practices in the UK and severely curtail land application, yet the proposed limit on PAHs has no apparent technical justification or proven benefit for human health or the environment. Indeed, to reiterate the conclusion of the JRC, the routine monitoring of POPs, including PAHs, is unnecessary for the agricultural use of sewage sludge.

PUBLIC HEALTH ISSUES

¹⁷ The Consultation Document says rather less about issues related to microbiological activity and its effects, including the production of malodours and the spread of diseases. The established practices to prevent these problems provide a two stage barrier, appropriate treatment and good practice in utilisation. The Consultation Document hints that this will continue as a basis of Regulation and the EWA supports this approach. However the EWA questions the practicability of setting product criteria and the monitoring therefore on a day to day basis. It recommends as preferable the identification of appropriate treatment technologies, and the definition of the criteria for best operational practice to achieve target quality criteria. The process is then managed by quality assurance methods and monitored by relevant techniques which assure product quality.

PUBLIC HEALTH ISSUES SUMMARY

¹⁸ The EWA supports with some caution the approach suggested by the EC but recommends that a quality assurance , rather than product quality , approach is used for microbiota.

GENERAL REMARKS ON THE CRITERIA

¹⁹ As a general comment the EWA can see no evidence of an understanding of the concept of a risk management framework for the changes proposed. What levels of risk are identified as being in need of action and how will the changes reduce those risks? At the highest level of risk management strategy, the EWA poses the question which it has addressed in previous submissions. If the proposed changes result in quality targets



being unachievable in any realistic way by waste water utilities, what will happen to the sewage sludge? It will have to be incinerated in a much greater extent. This could pose other risks to the environment and in general is more unpopular with the public. The EWA is disappointed that the words in the document do not meet the overall declared aim to promote recycling. It reads as if sewage sludge is a problem to be managed, rather than an opportunity to be exploited. We cannot find the word 'biosolids anywhere.

ANSWERS TO QUESTIONS

²⁰ **Q 1. Do you see an added value to introduce minimum quality requirements for bio-waste used in agriculture?**

As 'biowaste' will compete with biosolids for the agricultural landbank then it seems reasonable that it should be subject to the same controls as sewage sludge. Whilst bringing it under the Sludge Directive is a means of doing this, it should not mean that the same parameters need to be monitored for, or that the same concentrations standards should be applied. The 'three tier system' is a way of achieving this.

²¹ **Q2. What are in your opinion costs and benefits of introduction minimum standards for bio-waste used on soils?**

The benefit of introducing an appropriate minimum standard is the long term protection of the environment and ensures that materials applied to agricultural land are controlled and regulated.

²² **Q 3 Do you see an added value of extension of coverage of revision of sewage sludge directive onto non-agricultural soils (if yes, which types).**

It is important that the agricultural landbank is protected but it may be unnecessary to apply such strict quality criteria for other non-agricultural landbanks. A risk based approach could be taken for such applications. If this is progressed it should be a clear and transparent decision process so that Member States are able to follow it. It will always be necessary to understand the likely future uses of a site rather than just addressing current uses.

²³ **Q4. Would you have any proposals of substances to be tested for presence in sludge/bio-waste by JRC (Ispra) during FATE/SEIS exercise (separately for sludge and treated biowaste).**

Significant research has been carried out on the impacts and fate of metals and organics applied to land; this needs to be considered and should identify any need for future research and testing. We would expect any future limits, in particular any relating to PAHs, to be introduced only when they have been justified by the research and testing.

Concluding Remarks

²⁴ The EWA can see that there remains a great deal of work to be done and offers to assist the EC in reaching a proposal based on experience and sound scientific knowledge.



For instance, EWA is ready to convene a workshop, gathering experts and stakeholders from different European countries and with complementary background and knowledge, in order to further explore the concept of "End of Waste" as applied to sludge compost.

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