

**Submission to Water New Zealand on
Beneficial Use of Organic Waste Products on Land**

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Introduction

1. Terax Limited Partnership (TLP) was established to commercialise TERAX[®], an organic waste management technology jointly developed by Scion and Rotorua District Council.
2. Our business is based on commercialising the core technology related to the conversion of bacterial solids generated from wastewater treatment processes through an anaerobic fermentation and hydrothermal oxidation process that allows recovery of useable nutrient products as well as supply of dissolved carbon for further opportunities for biological nitrogen and phosphorus removal in the waste water treatment processes.
3. We consider that our technology provides the opportunity to reduce waste as well as recovery of products that are beneficial to the New Zealand environment.
4. TLP welcomes the opportunity to comment on the draft Water New Zealand Good Practice Guide entitled “***Beneficial Use of Organic Waste Products on Land***”, (2017 Draft Guideline) a document intended to replace the current “***Guidelines for the Safe Application of Biosolids to Land in New Zealand***” released in August 2003 (2003 Biosolids Guideline).
5. This submission comments on the proposed 2017 Draft Guideline on the various aspects and the relief sought with supporting reasons.
6. The aspects that we wish to submit on are:
 - a. Incorporation of social and cultural aspects into the guideline;
 - b. Diluting of focus from biosolids and generalising into organic waste products;
 - c. Risk of emerging organic compounds (EOC) entering food production;
 - d. Perception of increased risk to export markets;
 - e. Policing and enforcement of regulations related to the management of organic waste products; and
 - f. General observations on the 2017 Draft Guideline.

Social and Cultural Aspects

7. The reference in the 2017 Draft Guideline (Volume 1: Guide) provides a cursory glance at the matters to be considered when addressing the use of “organic waste products” in the context of Māori cultural views. The 2017 Draft Guideline refers to CIBR report 16-01¹, which specifically addresses how the concepts would apply to biosolids management rather than the broader organic waste products. The 2017 Draft Guideline fails to provide how an agreed framework to consider the social, cultural and Māori specific matters can be addressed. The 2017 Draft Guideline suggests “*Māori tribal authorities within whose rohe the application site is situated will need to be consulted at least for biosolids application*”, but is silent on how other organic waste products disposal would need to be managed onto land.
8. Failure to fully address the key social and cultural issues that would arise for the acceptance of use of land for the disposal of organic waste products creates a gap in the wide adoption and acceptance of the 2017 Draft Guideline if the intention is to streamline the wider acceptance and applicability of the new guidelines in the use of organic waste products.
9. **We submit that further recognition of the social, cultural and Māori aspects and values are integrated in the framework for the new guideline development.**

Organic Waste Products and Biosolids

10. We recognise the specificity of the 2003 Biosolids Guideline in relation to the use of the biological products from municipal wastewater treatment plants, and understand the reason for broadening of the guideline to accommodate other biological wastes that are generated from many different industries in New Zealand.
11. However, when broadening the categories to accommodate other organic wastes, there is a risk of relaxing the guidelines to the extent that it dilutes the premise by which the guidelines were set out in the first place.
12. The 2003 Biosolids Guideline recognised one key aspect that the material needed to include stabilised bacterial solids that met certain acceptance criteria. The 2017 Draft Guideline seems to relax the approach to Biosolids management to accommodate the inclusion of other organic waste materials.
13. The 2017 Draft Guideline is not cognizant of the Ministry for the Environment (MfE) Waste list² and how the inclusion of raw organic materials fits in with the classification of the wastes that is recognised elsewhere. It would be appropriate to set out the guidance in the 2017 Draft Guideline that addresses the reasons for inclusion/exclusion of different types of by-product materials that could be covered and any specific stabilisation requirements for each class of waste.
14. For example, we bring to your attention the 2017 Draft Guidelines states that raw organic material includes (among other things) wastes from “*paper and cardboard*” and “*pulp and paper waste*”. The wastes from these processes are broad and very varied and could result

¹ CIBR (2016). *From Tapu to Noa – Māori cultural views on biowastes management: a focus on biosolids*. Centre for Integrated Biowaste Research. Publication No. 16-01, March 2016.

² <http://www.mfe.govt.nz/waste/guidance-and-resources/waste-list>.

in generalisations where some of the waste products from some processes may be classified as hazardous waste under MfE waste list. Some of the processes may also contain chlorine derivatives and the list does not provide for or tag these exclusions.

15. There is a disconnect on the product contaminant concentrations for some of the metals listed in Table 5-5 and that listed under MfE Hazardous Waste Guideline (2004) for the screening criteria for Class A and Class B landfills³.
16. For the nutrient loading, the strict controls are on the nitrogen loading onto land, however, some of the product concentration limits for metals seem to be higher than the screening limits for landfill acceptance, yet the organic material may be allowed to be disposed of onto land. We recognise that nitrogen loading is a valid method of control for the use of nitrogenous organic waste products onto land, however, we submit that consistency in the metal concentrations need to be aligned with the thresholds that could trigger controls for landfill acceptance.
17. For some of the organic products, namely products generated from pulp and paper processing, the nitrogen concentration is very low and this could result in very high bulk loading onto land, effectively converting land disposal into a de facto landfill operation. We submit that further controls are put in place to avoid these situations.
- 18. We submit that if the 2003 Biosolids Guideline is extended to include other waste organic materials, then the controls need to be aligned with the waste acceptance criteria set out by MfE for all the different waste types in the MfE Waste List and specific requirements itemised for each type of waste.**

Emerging Organic Compounds

19. We agree with the findings of the technical report⁴ by CIBR that “*there is a strong perception of risk within the wider community when considering land application or reuse of organic wastes*”. Therefore, we consider that it is premature to broaden the acceptance of the categories of materials to be covered by the 2017 Draft Guideline, as at this stage there is not enough information to derive New Zealand specific limits.
20. The emerging organic compounds (EOCs) identified from the literature is based on sewage sludge. It seems that there is a considerable gap in understanding how these EOCs behave in complexed stabilised microbial solids (biosolids) or other direct origin organic products particularly when mixed together. Until such time as there is relevant information, caution must be applied with the use of all organic wastes destined for direct application to land and especially for application on food producing land.
21. The CIBR technical report acknowledges that certain wastes may require monitoring and setting of appropriate concentration limits in relations to EOCs, however, these controls are not translated into the 2017 Draft Guideline.
- 22. We submit that there are significant knowledge gaps regarding the fate and effects in the receiving environment of EOCs and as such a cautious approach needs to be employed in**

³ <http://www.mfe.govt.nz/publications/waste/module-2-%E2%80%93-hazardous-waste-guidelines-landfill-waste-acceptance-criteria-and>

⁴ CIBR (2014). *Organic Materials Guidelines – Organic Contaminants Review*. Centre for Integrated Biowaste Research. Publication No. 012, August 2014.

the relaxation of the guidelines in terms of acceptance of organic waste material onto land.

Perception of Increased Risk to Export Markets

23. We recognise that the agricultural export market makes up a large portion of New Zealand's economy. The framework to identify any risk to export markets on the wider use of organic waste products is not defined. It is essential that the users of the 2017 Draft Guideline, once adopted, understand the requirements for their customers locally and internationally. The proposed guideline does not provide clear guidance on this matter.
24. The 2017 Draft Guidelines suggest that *"there are potential risks to domestic and international trade as a result of applying biosolids to food producing land"*. However, the 2017 Draft Guideline proposes to extend the guidelines to include other organic waste products and relax the focus on Biosolids and as such fails to recognise the associated market risk.
25. We submit that a framework for the market risk assessment is set out in the guideline and is addressed adequately prior to the acceptance of the organic waste product onto land in either an uncontrolled or controlled regulated manner.
- 26. As a major exporter, Fonterra has reviewed its policy relating to the use of human effluent waste water and biosolids on pasture or feed that is fed to dairy cows supplying Fonterra. We submit that this code of practice should also be referred to in the guidelines.**
- **No sewerage sludge derived from the treatment of human waste may be used to grow pasture or feed that is fed to lactating animals.**
 - **No 'fertilisers' or soil conditioners containing human sludge/biosolids e.g. vermicast, compost, to be used to grow pasture or feed that is fed to lactating animals.**
 - **If dry stock is fed with feed that has been grown with stabilised sludge or wastewater that does not meet the Californian Standard Title 22, the stock must not be fed the material for 30 days before the start of lactation if they will be supplying Fonterra.**
 - **Any suppliers using human sewerage must meet the requirements of their local Regional Council.**
 - **District Council will be responsible for the production and implementation of the required management plan.**

We submit that all organic waste products that fall under this guideline have complete traceability of the source of the waste material so that the risks can be identified and where possible eliminated.

Policing and Enforcement

29. We recognise that the 2017 Draft Guideline will only be released as a guideline and will not have any regulatory status, unless adopted within the planning framework by regulators.
30. The 2017 Draft Guidelines fails to provide any guidance on how regulatory controls would work with the new guidelines, other than attempting to qualify some controls as having "Permitted" or "Controlled" status without having due regard to the process. The regulatory framework should be set out in Volume 1: Guide rather than as an adjunct to the "Technical Manual".

31. We submit that consideration is given to *Biosecurity (Ruminant Protein) Regulations, 1999* as the 2017 Draft Guidelines attempts to include manures and meat works wastes that may affect ruminants.
- 32. We submit that *Agricultural Compounds and Veterinary Medicines Regulations (2001)* and the *Fertiliser Associations of New Zealand Code of Practice for Nutrient Management (2013)* are also added as a regulation and acceptable code of practice for the control and management of the organic waste products in the 2017 Draft Guideline.**

General Observations

33. There are specific Māori terms utilised in the 2017 Draft Guideline, without providing guidance on the use of the terms.
34. There are various terms utilised in the guideline which results in confusing signals, including terms like biosolids, organic waste and biowaste. These terms need to be well explained in the guideline.
35. The 2017 Draft Guidelines makes a broad generalisation of other organic waste products as being no different to biosolids. This is hardly the case, where the organic waste products could be generated from specific processes but the biosolids are as a result of residual solids generation from biological wastewater treatment system and generally comprises to a large extent bacterial solids. The guidelines need to distinguish between different sources of waste and their inherent risks with appropriate mitigations for different types of wastes.
36. The 2017 Draft Guidelines provide for excessive relaxation of the current controls and inappropriately compromises good environmental practice. They also create a real risk where deposition of lowly loaded material onto land could result in creating de facto landfills.
37. The 2017 Draft Guideline attempts to shoehorn limits into strict regulatory planning controls where some of the limits are defined as meeting “Permitted Activity” and “Controlled Activity” status without having these controls tested through the relevant planning processes under Resource Management Act, 1991. We submit that all references to planning controls are removed from the guideline.
38. Our concern is that in pursuit of expedient outcomes, the 2017 Draft Guideline significantly diminishes the caution and rigour that was applied for the development of the 2003 Biosolids Guideline. We submit that further consultation is undertaken prior to release of the 2017 Draft Guideline in its current general form.