File No: 47 07 10
Document No: 10007973
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Te Kaunihera ā Rohe o Waikato

27 March 2017

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Water New Zealand
Attention: Nick Walmsley
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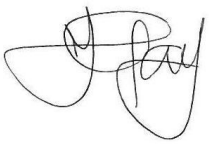
Dear Nick

Waikato Regional Council Submission to the draft Water New Zealand Good Practice Guide for the Beneficial Use of Organic Waste Products on Land

Thank you for the opportunity to make a submission on the "draft Water New Zealand Good Practice Guide for the Beneficial Use of Organic Waste Products on Land" consultation document. Attached is Waikato Regional Council's submission regarding this document. Please note this is a staff submission which has not been formally endorsed by Council. Waikato Regional Council looks forward to being involved in further discussion regarding the development of the document.

Should you have any queries regarding the content of this document please contact Jonathan Caldwell on (07) 859 0999 or by email at jonathan.caldwell@waikatoregion.govt.nz.

Yours sincerely,



Tracey May
Director Science and Strategy

SUBMISSION ON THE DRAFT WATER NEW ZEALAND GOOD PRACTICE GUIDE FOR THE BENEFICIAL USE OF ORGANIC WASTE PRODUCTS ON LAND

TO: Water New Zealand
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WELLINGTON 6140

FROM: Waikato Regional Council
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INTRODUCTION

Waikato Regional Council (WRC) appreciates the opportunity to comment on the draft Water New Zealand Good Practice Guide for the Beneficial Use of Organic Waste Products on Land ("draft Good Practice Guide").

We would like to acknowledge the time and effort that the Project Steering Group and the technical experts have dedicated to the preparation of this document.

Our submission is composed of two parts. Firstly, we assessed how the draft Good Practice Guide aligns with the Waikato Regional Policy Statement, Waikato Regional Plan and Waikato Regional Council's Waste Strategy. Secondly, we outlined our responses to the specific questions given the consultation document.

A. Alignment with Waikato's Policy Statement, Regional Plan and Waste Strategy

Overall, WRC supports the main intent of the draft Good Practice Guide, which is to promote a more consistent approach to the management of and benefits gained from applying organic waste products to existing soils as fertiliser and/or conditioning agents.

The draft Good Practice Guide underpins the development and implementation of waste management objectives set in the Waikato Regional Policy Statement and Waikato Regional Plan. It also supports the delivery of the Waikato Regional Council's Waste Strategy goals which are:

- to protect our communities, land, water and air from harmful and hazardous wastes
- to encourage resource efficiency and beneficial reuse that create sustainable, economic growth.

Refer to:
https://www.waikatoregion.govt.nz/Council/Policy-and-plans/Waste-management/Waikato-waste-and-resource-efficiency-strategy-2015-2018/

However, we have identified three main areas where inconsistencies would create significant issues. These areas are:

- Metal limits
- Composite sampling
- Soil mixing guidance.

1. Metal Limits

WRC is concerned about the proposal to classify organic waste as compliant as long as it does not exceed the product contaminant concentration limit for metals as presented in Table 5-5 of the draft Good Practice Guide.

It appears that these concentration limits are based on the findings of a contaminants review by Jurgen Esperschutz and Brett Robinson, August 2014. The limits were derived on the basis of the mass of organic waste that could be applied to the land based on the maximum mass load of nitrogen. The conclusion was that the Grade B limits set under the 2003 Biosolids Guidelines could be used.

However, WRC considers that the proposed contaminant concentration limits for cadmium, chromium, copper and zinc and possibly mercury are too high with respect to protection of ecological receptors even assuming that maximum homogeneity of contaminants is achieved after soil mixing.

In general, soil mixing is only practical for broad-acre contamination where the contaminant concentration for the critical contaminant is at or near the surface and less than two to three times the acceptance criterion.

The table below compares these metal limits with the recently developed ecological soil guideline values (Eco-SGVs) (http://www.envirolink.govt.nz/envirolink-tools/land-and-soil-tools/) for agricultural land in New Zealand and with maximum achievable reduction (3x) of contaminant concentrations after soil mixing[1].

Metal	Proposed product contaminant limits (mg/kg)	Eco-SGVs for agricultural land (mg/kg)	Achievable concentration after soil mixing (mg/kg)
Cadmium	10	1.5	3.3
Chromium	1500	300	500
Copper	1250	150[1]	420
Mercury	7.5	–[2]	2.5
Zinc	1500	190[1]	500

1. For typical aged soils
2. Note that there is currently no New Zealand based ecological soil guideline value for mercury. However, international guidelines are typically around 1 mg/kg.

This indicates the potential for contaminant levels for these metals to remain above the relevant guidelines for protection of ecological receptors even after mixing with the underlying soils.

It is important to point out that the achievable cadmium concentration after mixing of 3.3 mg/kg is inconsistent with the Tiered Fertiliser Management System (TFMS) upper trigger limit of 1.8 mg/kg which is designed to manage the accumulation of cadmium in agricultural soils from the use of phosphate fertilisers. This is to ensure that there remains minimal risk to human health and the environment over the long-term (refer Cadmium Management Strategy 2011). The proposed product cadmium concentration limit of 10 mg/kg is too high and is likely to remain above the current upper limit of 1.8 mg/kg set by the TFMS even after adequate soil mixing techniques.

Furthermore, we note that the proposed compliant organic waste limits are much higher than typical cleanfill and managed fill acceptance criteria. We do not agree as this would be sending an inconsistent message to the waste industry that it is alright to apply waste material on to land with these proposed metal concentration limits, but only if it is organic waste, not if it is fill/soil material.

We recommend that the proposed product contaminant concentration limits for these five metals (listed in the table above) are reduced such that after appropriate soil mixing techniques are applied the final achievable concentrations will not exceed the Eco-SGVs.

[1] Guideline for Contaminated Land Remediation by Soil Mixing, Prepared for Hawkes Bay Regional Council by PDP, October 2015.

2. Composite sampling

Section 6.5 of the draft Good Practice Guide discusses sampling regimes. Composite sampling is recommended for both metals and organics.

WRC agrees that composite sampling for metals is a pragmatic approach but we question the reliability of composite sampling for organics. The concentrations of semi-volatile and volatile organic compounds determined through compositing of a month's worth of daily samples is likely to significantly under-represent the true concentration through loss of volatiles. However, it is acknowledged that the handling and mixing of the organic waste after it is applied to land will also result in some loss of volatiles.

Composite sampling of volatile organic compounds is also not consistent with the Ministry for the Environment's Guideline No. 5 – Site Investigation and Analysis of Soils, which provides best practice for sampling and analysing soils on sites where hazardous substances are present or suspected, and guidance on the principles for interpreting the data obtained.

While it is acknowledged that requiring representative discrete sampling for determining emerging organic compound concentrations in organic waste products would be prohibitive there needs to be a balance reached in ensuring that loss of volatiles is minimised through the sample compositing process. This potential needs to be at least discussed with guidance provided around minimising volatile loss including mitigating factors such as appropriate sample storage.

3. Soil mixing guidance

WRC recommends more guidance is provided on soil incorporation/ soil mixing to avoid "hotspot" contamination and surface runoff in to waterways. This topic is mentioned under section 9.4, however insufficient detail is provided to ensure adequate vertical mixing of organic waste products with the underlying soil.

Soil mixing should be a recommended requirement. The following documents provide guidance that could be applied to application of organic waste products to land:

Remediation of horticultural broad acre land using vertical soil mixing (soil mixing trials by Auckland Regional Council)
http://www.wasteminz.org.nz/pubs/remediation-of-horticultural-broad-acre-land-using-vertical-soil-mixing/

NSW EPA Guidelines for the vertical mixing of soil on former broad-acre agricultural land
http://www.epa.nsw.gov.au/search.htm?q=Guidelines+for+the+vertical+mixing+of+soil+on+former+broad-acre&imgSearch=Go

Guideline for Contaminated Land Remediation by Soil Mixing, Prepared for Hawkes Bay Regional Council by PDP, October 2015 (WRC Doc# 3969749, copy attached with this letter – currently neither PDP or Hawkes Bay Regional Council have this document on their websites).

B. Specific questions from the Consultation Document

- Should the word 'waste' be included in the title and descriptive text? Should it just refer to 'Organic Products' or 'Organic Materials'?

  WRC agrees that the word waste should be included in the title and descriptive text. We consider that the use of the word waste is positive, not negative, as it signals that we are diverting and finding beneficial re-use of something that would otherwise have been disposed of to landfill etc.

- Should the proposed 'Type' 1A, 1B etc be used or revert back to the previous Aa, Ab etc nomenclature used in the 2003 Biosolids Guidelines?

  WRC's view is that Type 1A, 1B etc. seems to be a better, more intuitive nomenclature to use.

- Should measurement of emerging organic contaminant limits be mandatory for all biosolids applied to land so that a New Zealand database can be established more quickly, giving a greater ability for evidence based review?

  WRC generally agrees but we are mindful that the selected emerging organic contaminants (EOCs) that have been recommended by the Technical experts, Louis Tremblay et al., may be more relevant to sewage sludge and that a varied or reduced suite of these contaminants may be more appropriate for organic materials such as manures and pulp and paper waste for example. In cases where there is a mixture of different organic wastes or just sewage sludge waste then the full list would be appropriate. However, if the organic waste being applied was for example just pulp and paper waste then a reduced suite of EOCs may be sufficient i.e. endocrine disruptors and pharmaceuticals are not expected to be present in this waste stream.

  We recommend to build up a repository of data on EOC concentrations from various organic wastes. Regional Councils could act as the initial collectors of some of these data in situations where the discharge of organic wastes to land required resource consent. However, in situations where the discharge of organic wastes to land met the permitted activity rule requirements then it would be more difficult for Regional Councils to acquire such data unless this provision of data was made one of the requirements of a permitted activity rule.

  We propose that the suite of EOCs and associated trigger limits are reviewed regularly e.g. no less than once every five years.

- Volume 1 The Guide is intended to give practical guidance. Is the information clear enough, in the correct format, split adequately between background/supporting information (Technical Manual) and the *Guide*? How could it be improved?

  There is some duplication of material in the Technical Manual that could be eliminated. We propose that Volume 2 could be better referred to as Appendices to the Guidance document and does not require the same introduction etc. as is included in Volume 1. We also recommend that the full references for the Pathogens, Trace Elements and Organic Contaminant Reviews are specifically included rather than just providing a web link as it assumes that the reader is reading an electronic copy rather than a hard copy.

  The Technical Manual should also contain more guidance on soil mixing and sampling techniques as discussed above.

- Are there any concerns over the proposed changes? What are they?

  WRC's concerns have been discussed above.

- What positive or negative impacts will the proposed changes have on your business?

  WRC's views are that the proposed contaminant limits and definitions are inconsistent/ less stringent in comparison with WRC's current biosolids plan rules and could pose an unacceptable risk to the environment unless properly managed.

- Are the changes to the guidelines able to be aligned with current regional and district plans?

WRC does not agree that the changes to the guidelines are aligned with the Waikato Regional Plan that specifically refers to biosolids, sludges and liquids from activated sludge treatment processes rather than the wider interpretation of organic wastes in this proposed guidelines. Contaminant levels are also limited to the lower Type A limits and include the older persistent organic pollutants rather than the emerging organic contaminants. Significant changes to the Waikato Regional Plan would be required to align it with the proposed guidelines.

More details on the inconsistencies between the proposed guidelines and Waikato Regional Plan are given below:

Waikato Regional Plan definition of biosolids is "Processed sludges and liquids from industrial and trade premises that are suitable for reuse as soil conditioners or fertiliser substitutes".

Rule 3.5.6.4 of this Plan provides for the beneficial reuse of biosolids sourced from municipal wastewater treatment plants and industrial sources provided that **contaminants within the biosolid are sufficiently low** so that there is little risk of creating a new contaminated site through continual application of the material. WRC is concerned that there could be the risk of creating a new contaminated site (with regards Eco-SGVs) if some of the new metal limits proposed in the draft Good Practice Guide are allowed.

The contaminant levels in Table 3-8 of the Waikato Regional Plan (rule explanation section) are derived from the Guidelines for the Safe Application of Biosolids in New Zealand (NZWWA, 2003). To ensure that the objectives and policies in Chapter 5.2 of the Plan are achieved, the levels are set at the contaminant levels deemed by that guideline to be acceptable from 2012 rather than the less conservative values recommended from 2003 - 2012. With this exception, biosolids or other effluents that have obtained registered Biosolids Quality Mark accreditation or equivalent are enabled by this Rule.

In addition to this, Policy 14.3 (Soil Contaminants) of the Waikato Regional Policy Statement (WRPS) requires WRC to:

Ensure that **contaminants** in soils are minimised and do not cause a reduction in the range of existing and foreseeable uses of the soil resource. Particular attention will be given to the potential for effects on:

a) human health
b) animal health
c) suitability of soil for food production
d) micro-nutrient availability
e) soil ecology
f) groundwater.

Implementation method 14.3.1 (Control discharges to land) requires that:

"Regional plans shall control discharges to land to ensure the accumulation of soil contaminants does not reduce the range of existing and foreseeable uses of the soil resource.

For key soil contaminants including cadmium, fluorine and zinc, Waikato Regional Council will consider:

a) adopting risk-based guidelines for contaminants in soil and linking these with specific management actions
b) establishing processes to determine discharge limits which may include setting maximum discharge limits based on soil contaminant levels".

Based on this high level WRPS direction, WRC would not be in a position to align the Waikato Regional plan rules with some of the metal limits proposed under these proposed guidelines.

- Is using the NES for Assessing and Managing Contaminants in Soil to Protect Human Health, April 2012 an acceptable means of protecting human health in the urban environment? If not, what do you suggest as an alternative?

  With regards to the soil contaminant standards for the 12 priority contaminants, WRC considers that these provide an acceptable means of protecting human health in the urban environment. However, it is important to note that these standards do not necessarily provide adequate protection of ecological receptors within an urban or rural environment.