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BETTER TESTING BETTER RESULTS

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1. Submitter:

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Background comment

Hill Laboratories is the largest privately owned analytical testing company in New Zealand. Hill Laboratories has the latest instrumentation and offers the widest range of environmental tests of any laboratory in NZ, carrying out well over two million test measurements each year.

Peter Robinson has an extensive background in analytical chemistry and has worked on both MfE and MoH projects. As part of his current role as Client Service Manager he is involved in technical discussions with a wide range of clients, including Councils, Consultants and Industry, on all aspects of producing and applying chemical tests to improve the NZ environment.

Part of the service we offer our clients is technical advice on what tests to carry out, sampling procedures, analytical methods and appropriate detection limits, uncertainty of measurement of results and general comments about interpreting results.

The submissions made in this document are based on the above background, and over 20 years of experience 'at the coal face' in environmental testing. I have tried to highlight areas where clients have found confusing or uncertain information in the past, and made suggestions to try and minimize costs by reducing the need for replication in effort to meet separate health and environmental guidelines.

2. This submission relates to the **Proposed National Environmental Standard for Assessing and Managing Contaminants in Soil**

3. I oppose the standard as written

4. Submission

a. Basis for the Standard.

I am concerned that the Standard, apart from a mention on p18 para 3, under "Why does the policy objective focus on making the land safe for human use?" concentrates almost exclusively on effects on human health. The words 'adverse effects' and 'and the environment' are included in a number of places but the 'environment' is largely ignored apart from the human part.

As an example, copper is relatively non-toxic to humans (Drinking Water Standard 2mg/L), but very toxic to aquatic life (ANZECC 95% guideline 0.0014mg/L, over 1000x lower than the human health value).

It seems strange that MfE is proposing guideline values that may have been better to come from MoH, and ignoring in the SGV any effects on the non-human environment.

This will limit any potential use of the Standards to nothing more than a useful reference, as Councils will still have to consider the rest of the environment in their decisions so will need to look elsewhere for appropriate information (Section 4.1.1 final para "*The restricting of the scope to human health does not detract from the important and ongoing role of regional councils to assess ecological impacts on a site-by-site basis in accordance with their function under the RMA*"). If they've got to do it anyway, why not provide guidance and reduce the huge cost of duplication of effort and variability in the way environmental issues are handled?

I submit that the standards should be expanded to include consideration of environmental and ecological effects, this will minimize duplication of effort and costs if separate standards for both health and environmental/ecological effects need to be met.

b. Alternative to a Standard

It appears that the driver for much of this document is based on subdivision of horticultural/agricultural land for residential use. Everything else seems to have been tacked onto this.

I submit that this information would be better presented as another in the Contaminated Land Management Guidelines series, similar to the "*Identifying, Investigating and Managing Risks Associated with Former Sheep-Dip Sites, A guide for local authorities*" publication eg "*Identifying, Investigating and Managing Risks Associated with Former Horticultural/Agricultural Sites being converted for Residential Use, A guide for local authorities*."

c. Qualified Practitioner

There is no guidance or system to determine who an "*an appropriately experienced and qualified practitioner*" is. As one of the aims of this Standard (2.3) is to be "*consistent and adequate*", but if each council is free to determine who is *appropriately experienced and qualified* then this will surely detract from any consistency.

I submit that a national system for determining appropriate experience and qualification should be set up before any National Environmental Standard is implemented.

d. Soil Guideline Values (SGV)

(i) Methods for analysis

There is no mention of methods to measure these compounds. In some cases different methods can give significantly different results eg the Timber Treatment Guideline specifies Hot Water Soluble Boron, and presumably the toxicity calculations are based on doing the contaminant concentrations using this method. But toxicity data generally appears to ignore the method of measurement of the substances.

A comment such as "Testing should be carried out by a laboratory Accredited by IANZ for that test" should be added in section 8.2. I would not support prescriptive listing of acceptable test methods (eg as in the Drinking Water Standards) as this is unnecessary, unwieldy and very expensive to administer. IANZ was set up to ensure appropriate laboratory quality is maintained.

I submit that a comment "Testing should be carried out by a laboratory Accredited by IANZ for that test" should be added in Section 8.

Note that this has a close link with the requirement for *an appropriately experienced and qualified practitioner* to collect the samples. If the field work isn't done correctly then anything the laboratory may produce can be meaningless. IANZ may be one option to consider for determining who is *appropriately experienced and qualified.*

(ii) High SGV

Some of the SGV as so high as to be meaningless eg Chromium of 890,000mg/kg = 89%. This level would not be reached unless solid chromium metal were present.

I submit that very high levels should be replaced by N/L (No limit) or left blank.

(iii) Inorganic Lead and Inorganic Mercury.

I am not aware of any laboratory in NZ offering these tests (as opposed to "inorganic+organic" ie total which would be the laboratory defaults). I am also not aware of any current international standard method for either of these substances. Setting these up specifically would be expensive, and result in considerably (probably 2-10x) increased costs for analyses.

The terms Inorganic Lead and Inorganic Mercury by default exclude the 'organic' forms of lead and mercury. Organic lead and organic mercury are many more times more toxic than the inorganic forms, but rare in the NZ environment now that leaded petrol is no longer used. These substances are unlikely to be present at sites being targeted for subdivision, so there is no real need to qualify them with the preface 'inorganic'. And for consistency, why hasn't arsenic also been treated the same way?

I submit that the term 'Inorganic' be removed from these substances, and that all elements be prefaced by "Total Recoverable" with this defined as "extraction according to the USEPA 200.2 method".

e. The SGV Application Framework

There is no specific mention anywhere in section 8.3 (or elsewhere in Section 8) about substances which are not listed in the SGV tables. There are many hazardous substances which could be present, and this should be emphasized at the start of Section 8, and in the flowchart figure 8, and preferably as a footnote to the SGV tables. The use of HAIL, and mentions of preliminary investigations, imply that other hazardous compounds could be identified as possibly being present, but there is no clear guidance for how these are to be handled.

I submit that an extra phrase should be added in 8.1;
"Note that there are many other hazardous substances which may be present on contaminated sites, and the possibility of these occurring should be ruled out before relying solely on the small number of substances covered in the SGV tables to ensure there is no adverse effect on human health."

Final Comments

I appreciate the effort which the Ministry has expended on producing the proposed NEC, which will form a useful document for future reference whatever the outcome of the submissions process.

My major concern is that Councils, and consent applicants, because of a requirement to protect both human health AND the environment, will need to carry our considerable duplication of effort, and hence expense, in order to meet their obligations. The SGV complicate rather than simplifying their responsibilities.

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