

19 April 2010

**Submission to Ministry for the Environment on the Proposed National Environmental Standard for Assessing and Managing Contaminants in Soil (NES).**

The Institute opposes the proposed standard in its current form. The Institute strongly supports the introduction of National Environmental Standards to manage, access and remediate contaminated land in order to protect human health and ecosystems. We support the progress made to date and look forward to the development and implementation of a robust Standard in the near future.

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## **1. Introduction**

The proposed standard states the problem to be addressed in the discussion document is as follows:

New Zealand has a legacy of soil contamination that requires to be identified and assessed. To ensure this land is safe for human use, land affected by contaminants in soil should, if necessary, be remediated or contained at the time of being developed. However, the existing controls are either absent, inadequate or inconsistently or inappropriately applied (page 7).

In the following submission, we briefly describe the Institute and then discuss our key concerns.

## **2. About Sustainable Future Institute**

Sustainable Future is a non-partisan, not-for-profit research organisation specialising in issues that affect New Zealand. Our purpose is to produce timely, complete and well-researched information relevant to New Zealand's long-term future.

## **3. Concerns**

The Institute has four major concerns with the proposed Standard; the title does not reflect the content, the focus of the standard is limited to human health rather than both human and ecological health, the existing lack of alignment between the Hazardous Substances and New Organisms legislation and the proposed standard and the need for effective reporting.

### **A: The Title**

We believe the current title: '*The National Environmental Standard for Assessing and Managing Contaminants in Soil*' is misleading and implies a scope far wider than the coverage of the NES.

The solution is either to expand the proposed standard to encompass guidelines for threshold levels of contamination on all land, which is our preference or change the title to describe exactly what the standard includes. In our view the title should be: '*The National Environmental Standard for Assessing, Managing and Remediating Soil already contaminated by Hazardous Substances*'.

The current title implies that the proposed Standard sets threshold levels of soil contamination for all land, resulting in two problems.

Firstly, confusion and misinterpretation by both the public and land developers. The public may be unlikely to understand this difference and developers will want to be able to sell land for development with levels of contamination similar to what is in the NES, whereas Regional Councils will want soil contamination levels similar to Ministry for the Environment environmental guidelines.<sup>1</sup>

The second problem is the possibility of elevated levels of contaminants if the standard becomes used as a means of approving applications rather than simply prioritising already contaminated areas for clean-up.

Both these views have been raised by Regional Councils. The title suggested above should aid in reducing confusion.

**B: The Focus of the standard is on human health rather than ecological health.**

Notably the proposed standard only aims at creating minimum standard threshold levels to protect human health, whilst not considering ecological health systems. This may result in land being unknowingly contaminated to levels higher than pre-existing allowable environmental contamination levels. These guideline levels are used by regional council's, often in resource consents or regional plan rules and are designed specifically for the environmental safety of our land and must take precedence.

The Ministry for the Environment has guidelines for contaminated land based on environmentally safe levels which allow a more stringent threshold for contamination in order to protect both our human health and unique ecosystems. Thus we consider the proposed standard should be designed to meet the objectives of improving human and ecosystem health.

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<sup>1</sup> See appendices of Proposed National Environmental Standards: Appendix 1: Soil guideline values and exposure scenarios; Appendix 2: Site-specific assessment; Appendix 3: Summary of the toxicological intake criteria; Appendix 4: Hazardous Activities and Industries List.

## **C: Lack of Alignment between the Hazardous Substances and New Organisms Legislation and the proposed Standard**

The Institute considers good governance demands strong alignment between environmental legislation and National Environmental Standards. Currently, under the HSNO Act, hazardous substances and new organisms have been grouped and managed together. Further, the HSNO Act describes what is meant by hazardous substances and defines ecotoxic in terms of effects on any living organism (supporting our concern in B above). The proposed standard should also follow this broader interpretation, in that it should cover all land that may be contaminated, and therefore all possible contaminants – including GMOs.

We suggest that either the proposed standard should include: (i) contamination resulting from Genetically Modified Organisms (GMOs) or (ii) clearly exclude contamination resulting from GMOs. The latter has been a significant issue in recent years as reflected by Appendices 2 and 3. Further, New Zealand has already undergone at least 25 GMO tests in the outdoors to date (See Sustainable Future, 2008a: Appendix 6). In addition contamination by GMOs was a significant issue raised at the 2001 Royal Commission. The Royal Commission recommended that ERMA undertake research on environmental impacts on soil and ecosystems and MAF develop a code of practice to manage co-existence, which demands effective distances between GMOs and non-GMOs, both of which are designed to understand and minimise soil contamination.<sup>2</sup> This leads to two options:

### **(i) Include Contamination from GMOs in the Standard**

We would have preferred to see contamination from GMOs included in the proposed standard as contamination from GMOs in soil has been an ongoing concern<sup>3</sup> and hazardous substances and new organisms are

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<sup>2</sup> See recommendations 6.12 and 7.7 (below) which are also discussed in our report (Sustainable Future, 2008b: 45-46).

Recommendation 6.12 That the Environmental Risk Management Authority (ERMA) require research on environmental impacts on soil and ecosystems before release of genetically modified crops is approved. Recommendation 7.7: That MAF develop an industry code of practice to ensure effective separation distances between genetically modified and unmodified crops (including those grown for seed production), such a code:

a. to be established on a crop-by-crop basis

b. to take into account:

– existing separation distances for seed certification in New Zealand;

– developments in international certification standards for organic farming;

– emerging strategies for coexistence between genetically modified and unmodified crops in other countries

c. to identify how the costs of establishment and maintenance of buffer zones are to be borne. (RCGM, 2001).

<sup>3</sup> See *Biosafety Assessment Tool* at <https://bat.genok.org/bat/>

considered together in our legislation and managed together under ERMA.

(ii) Exclude Contamination from GMOs in the standard

We believe the proposed Standard currently excludes contamination from GMOs, in which case this should be stated in the title of the Standard, or at least clarified as a limitation on the first page of the text – namely; that contamination via GMOs is not covered under this Standard.

We also consider policies must align between guidance within government departments, and suggest MAF, MFE, and DOC should work in unison to develop a comprehensive set of standards that provides national environmental standards encompassing and protecting all aspects of New Zealand's environment.

Thus, we suggest the proposed standard should either state specifically whether the standard includes or excludes contamination resulting from GMOs, however our clear preference is the first, as we believe hazardous substances and new organisms should be considered in unison.

## **D: Effective Reporting**

The discussion document notes:

Local authorities play a pivotal role in administering land information and controlling the effects of land use. At the time of purchase, the liability for land is normally transferred to the new owner; hence it is paramount that property information is accurately categorised and publicly available to interested parties. It follows that the land tenure system depends on the public having confidence that land information is properly administered, and that potential risks are identified if known. (Page vi)

We consider the implications for reporting on contaminated land should be clearly considered and guidance provided in terms of reporting to the public - as an owner, a council and at a national level. We believe this guidance needs to be considered in terms of FRS-15 Provisions, Contingent Liabilities and Contingent Assets.<sup>4</sup>

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<sup>4</sup> See

[www.nzica.com/AM/Template.cfm?Section=Financial\\_Reporting\\_Standards\\_files&Template=/CM/ContentDisplay.cfm&ContentID=13455](http://www.nzica.com/AM/Template.cfm?Section=Financial_Reporting_Standards_files&Template=/CM/ContentDisplay.cfm&ContentID=13455)

**References:**

Sustainable Future Institute (2002). *'How "Conditional Release" may assist in achieving coexistence?'*. Retrieved 19 April 2010 from <http://www.sustainablefuture.info/includes/download.aspx?ID=80581>

Sustainable Future Institute (2008a). *The History of Genetic Modification in New Zealand*. Retrieved 19 April 2010 from <http://www.sustainablefuture.info/includes/download.aspx?ID=31520>

Sustainable Future Institute (2008b). *Review of the Forty-Nine recommendations of the Royal Commission on Genetic Modification*. Retrieved 19 April 2010 from <http://www.sustainablefuture.info/includes/download.aspx?ID=31521>

# Appendix 1: Hazardous Substances and New Organisms Act 1996

## Interpretation

Ecotoxic means capable of causing ill health, injury, or death to any living organism

Genetically modified organism means, unless expressly provided otherwise by regulations, any organism in which any of the genes or other genetic material—

- (a) Have been modified by *in vitro* techniques; or
- (b) Are inherited or otherwise derived, through any number of replications, from any genes or other genetic material which has been modified by *in vitro* techniques:

Hazard classification means a combination of the hazardous property of a substance and the level or type of hazard related to that property prescribed in accordance with section 74 of this Act

Hazardous substance means, unless expressly provided otherwise by regulations, any substance—

- (a) With one or more of the following intrinsic properties:
  - ⊖ (i) Explosiveness:
  - ⊖ (ii) Flammability:
  - ⊖ (iii) A capacity to oxidise:
  - ⊖ (iv) Corrosiveness:
  - ⊖ (v) Toxicity (including chronic toxicity):
  - ⊖ (vi) Ecotoxicity, with or without bioaccumulation; or
- (b) Which on contact with air or water (other than air or water where the temperature or pressure has been artificially increased or decreased) generates a substance with any one or more of the properties specified in paragraph (a) of this definition:

Heritable Material, in relation to a new organism, means viable biological material, including gametes and spores, arising from the organism that can, without human intervention, regenerate the organism or reproduce a new generation of the same species of the organism

Landfill means any premises used for the lawful deposit or disposal of waste materials into or onto land

Substance means—

- (a) Any element, defined mixture of elements, compounds, or defined mixture of compounds, either naturally occurring or produced synthetically, or any mixtures thereof:
- (b) Any isotope, allotrope, isomer, congener, radical, or ion of an element or compound which has been declared by the Authority, by notice in the *Gazette*, to be a different substance from that element or compound:
- (c) Any mixtures or combinations of any of the above:
- (d) Any manufactured article containing, incorporating, or including any hazardous substance with explosive properties:

## Appendix 2: Community Management of GMOs: Issues, Options and Partnership with Government

Prepared for Whangarei District Council in association with Far North District Council, Kaipara District Council, Rodney District Council, and Local Government New Zealand. Simon Terry Associates Ltd, March 2004.

In addition to well recognised sources of risk, there are areas of more general uncertainty surrounding GMOs and their potential effects on receiving environments. Little research has been done internationally on soil ecosystems. The Royal Commission noted the absence of research and understanding of the implications of GMO release for New Zealand soil ecosystems. It stated that “there is a need for research specific to the New Zealand environment”.<sup>5</sup>

Research into one aspect of concern – the asexual transfer of genetic material from one organism to another (or “horizontal gene transfer”) is now the subject of a research programme by Environmental Services Research, which notes that:

“It will be very difficult for regulators to develop a risk framework that takes account of HGT without data applicable to New Zealand conditions”.<sup>6</sup>

Uncertainty is likely to increase with new generations of GMOs that radically alter the properties and functions of existing crops. This includes the use of food crops for the production of substances not intended for human food uses, ranging from the production of pharmaceuticals to fuels. In its review of the environmental effects of transgenic plants, the US National Science Council concluded that such GMOs pose a challenge for environmental risk assessment:

“The introduction of such transgenes poses the potential for environmentally associated risks of a wholly different order than those associated with existing transgenic crops. If such a transgene moves into a wild relative, there could be widespread environmental dissemination of the pharmaceutical substance or other nonfood substances that could have impacts on wildlife as well as microbial populations”.<sup>7</sup>

The field trialling, conditional and full release of GM organisms are land uses, and the RMA deals more specifically with regulation of such activities. Section 5(2) of the RMA states:

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<sup>5</sup> See section 30(2) of the RMA: 30. Functions of regional councils under this Act - ... (2) The functions of the regional council and the Minister of Conservation [under subparagraph (i) or subparagraph (ii) or subparagraph (vii) of subsection (1)(d)] do not apply to the control of the harvesting or enhancement of populations of aquatic organisms, where the purpose of that control is to conserve, [use,... enhance, or develop any fisheries resources controlled under the Fisheries Act 1996].

<sup>6</sup> The Environment Court has held the RMA is not subject to the Reserves Act 1977 when considering land which involves both statutes. See *Auckland Volcanic Cones Soc Inc v Transit NZ Ltd* A203/2002.

<sup>7</sup> When interpreting the provisions of the statutes, the Interpretation Act 1999 applies.

(2) In this Act, “sustainable management” means managing the use, development and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while –

- (a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
- (b) Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and
- (c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment.

### **Appendix 3: ERMA refuses soil-testing despite more GE-Sheep**

Friday, 23 May 2003, 9:30 am

Press Release: GE Free NZ

ERMA refuses soil-testing despite plan for more GE sheep

GE Free New Zealand in Food and Environment have concerns that ERMA, (the Environmental Risk Management Authority) are failing to ensure any research into soil contamination and HGT (Horizontal Gene Transfer) from a flock of GE sheep despite signals that more GE sheep are in the pipeline.

"ERMA seem to be willing to fly blind on the issue of HGT from the existing trials, making a mockery of the requirement to follow the Precautionary Principle. Closing your eyes and refusing to require scientific studies is not precautionary, it is negligent," says Jon Carapiet from GE Free NZ in food and environment.

Bas Walker from ERMA has confirmed that no research into HGT from the GE sheep trials has been done, and none is planned. Yet more GE sheep are on there way , with ERMA authorising the expansion of the existing trial some months ago, and new trials may soon be on their way.

GE Free (NZ) is also wondering why PPL is conducting small meetings in the out of the way district of Whakamaru on a new commercial experiment when their experiment on anti-alpha trypsin (hAAT) is in trouble. In 200? clinical phase II trials were halted with the decision made not to build a \$42 million dollar GE milk refining plant due to financial difficulties.

These 'hAAT' animals are out in the open fields defecating and aborting onto the ground and this discharge could leach GE DNA into ground water or be removed by birds and rodents. GE animals are also often sick and suffer a range of diseases like mastitis, arthritis and immune system defects.

"Monitoring of the hAAT trial has been sloppy with essential tests being overlooked," says Claire Bleakley, who earlier challenged ERMA's approval of GE cows in the courts. "Eprex -a GM derived product -has caused the immune systems of patients to produce antibodies that attack the pharmaceutical and the bodies' natural protein, causing severe immune breakdown, and leading to severe anemia," she says. "The cost to the health and environment of New Zealand could run into billions of dollars if a pathogen is created from the shedding of DNA from any genetically modified discharges".

To date no final scientific article has been published on the findings of any genetically modified animal experiment carried out in New Zealand. True records that can be peer reviewed and assessed into the sheep experiment have yet to be presented.

"It is premature and worrying that a small community is being asked to consult on a new human-sheep transgenic experiment (Bile Salt Stimulated Lipase) when the previous experiment is languishing and has shown no successful results.

"ERMA cannot keep approving new experiments on an ad hoc basis until proper scientific rigor has been carried out" said Ms. Bleakley, President of GE Free (NZ), "and that means peer reviewed published results on the hAAT experiment and its problems. Good science is the true understanding of a process not a commercially expedient guess."

GE Free NZ notes that there are grave misgivings when the species barrier is crossed, especially with the use of cross species and human genetic codes. These experiments make the human -animal barrier crossing of pathogens more likely and could add to existing problems like HIV/AIDS, BSE or CJD.

References:

ERMA Annual Reports (2000,2001 2002)

PPL Annual report

Taupo Times Advertisement

Public notice inviting iwi, local community and interested parties to a consultation meeting with PPL Therapeutics.

Plans are to develop and field Trial Sheep transgenic for bile Salt Stimulated

Lipase at the Whakamaru site. Fact sheet available from The Office Manager, PPL Therapeutics (NZ) Ltd, Main Rd, Mangakino.

Meeting was held at the Whakamaru School Hall at 7pm Wednesday 21 May 2003.

Retrieved 19 April 2010; from <http://www.scoop.co.nz/stories/SC0305/S00075.htm>.