

The 'Rotorua sheep-dip saga' highlighted by the television program *Fair Go*, is a good example of what can go wrong when contaminant issues are overlooked. In this case the new landowners did ask advice however due to a series of mistakes by councils, the surveyor, the planner and the development engineers significant contamination from past spray-dipping operations was detected too late and the cost for a partial remediation was carried by all of the parties involved with some sponsoring by the Ministry for the Environment.

This could have been avoided if any or all involved would have realised that even in 'Clean and Green' New Zealand contaminated land is a reality that we have to deal with. The past and future landowners should have taken note and informed each other, the planning officer / consultant certainly should have associated the woolshed with the past use of pesticides. Dipping sheep is almost as old as the industry itself in New Zealand with the Sheep Act of 1890 imposing penalties if sheep were not dipped.

Subdividing or changing land-use?

The developer or land owner will be required by many councils to provide an initial site assessment report. Even though the consultant who carries out this work may wish to include analysis for a wide spectrum of contaminants, funds are often limited at this stage and it will be up to the regulators (councils) to be vigilant and request additional testing if there is suspicion something may be overlooked. Unfortunately to develop this sixth sense requires experience. The council could have the report reviewed by another consultant or as a minimum make a phone call to the consultant who wrote the report and ascertain if he/she was limited in their scope of works in anyway.

Note that small 'back-yard' subdivisions are just as likely to run into contaminated land problems as large subdivisions. Many suburbs are built over old horticultural and even industrial land at times when soil contamination was not even considered. As development is a time of major change councils should require investigation and if needed remediation of the whole property before granting the subdivision (of the back section).

Site investigation process

There are many guidelines on site assessment. Below a limited list is provided with their web-references. There are also many different guideline values. Even though a consultant and the local and/or regional council may agree on the use of a certain guideline, and the concentration of relevant contaminants soil on the property meet these criteria, the site may still be contaminated when other guidelines are considered.

A good example is the maximum allowable concentration of copper in residential soils in Hastings District. Based on human health criteria the maximum concentration of copper for residential soil is set at 2,300 mg/kg dry weight. Using this guideline value many of the sections in an area in Brookvale, Havelock North passed as 'clean' new sections. However the grass seed would not germinate. Copper levels appeared to range between 900 and 1,750 mg/kg dw. Canadian human health criteria are set at 1,100 mg/kg dw, while the combined environmental (eco-toxicity) and human health guideline for soil at residential sections is set at 63 mg/kg dw. Clearly only looking at human health which uses soil ingestion or dust inhalation as main risk factors does not allow for all aspects of 'enjoying a clean and green environment' at a freshly remediated new section.

Buyers are therefore advised not only to check the conclusion of the investigation or validation reports but to check the site specific guideline levels used.

Consultants are advised to take a wider perspective when setting clean-up criteria for soils. Again applying the guideline of the Hastings District Council where the guideline value for the sum of all DDT derivatives is set at 25 mg/kg dw, an American investor walked away from a deal involving purchasing almost all sections on a subdivision. This guideline is well over 5 times the guideline used in Hawaii*, a more liberal state than most. In Canada and Holland the guideline for the sum of DDT is set at 0.7 mg/kg dw.

So town planners should be aware that the new sections in their town maybe commercially affected by the relative high guideline levels set and how well the procedures are followed. They also need to take a wider perspective when determining the allowable risk factors and which guideline would be most applicable. The Hawaiian guideline is a good example as it distinguishes between soil with ground or surface water connections.

The Regional councils should ensure they have an input in all environmental related matters. Even though the city or district councils have the protection of human health at heart, in matters of guideline levels the environmental effects are often the overruling factor. New Zealand has hardly any national guidelines to protect its environment and personal communications with the Ministry for the Environment has indicated that this may take years if not decennia to develop. So in the interim RC's are advised to use the MfE guideline no. 2 and apply the most sensitive foreign guideline available, or seek specialist advice from independent experts. Of course EPA will be glad to be of assistance in answering any question.

References

Site assessment:

www.mfe.govt.nz/publications/hazardous/contaminated-land-mgmt-guidelines-no5/index.html
www.mfe.govt.nz/publications/hazardous/oil-guide-jun99/
www.mfe.govt.nz/publications/hazardous/oil-guide-jun99/
<http://www.brownfields.com/WhitePapers/BrownfieldsSiteAssessments.pdf>
<http://www.environment.nsw.gov.au/clm/servicestation.htm>

To assess the risks:

www.mfe.govt.nz/publications/hazardous/contaminated-land-mgmt-guidelines-no3/index.html
contamsites.landcareresearch.co.nz/review_methodologies.htm
<http://www.erg.com/portfolio/elearn/ecorisk/html/resource/guidelines.pdf>

Guideline values:

Use guideline section on the www.EPA.org.nz site or go to:
www.mfe.govt.nz/publications/hazardous/contaminated-land-mgmt-guidelines-no2/index.html
for full set of guidelines see : www.ec.gc.ca/ceqg-rcqe/English/ceqg/default.cfm
specific guidelines extensively explained for each contaminant: <http://ceqg-rcqe.ccme.ca/>

* Screening For Environmental Concerns At Sites With Contaminated Soil and Groundwater
Volume 2: Background Documentation For The Development of Tier 1 Environmental Screening Levels Appendix 1
Prepared by: Hawaii Department of Health Environmental Management Division
919 Ala Moana Blvd Honolulu, Hawai'i 96814 INTERIM FINAL – May 2005 (Updated August 2006 – 33 chemicals added.